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ABSTRACT

This volume contains 20 case study profiles of educational RDD&E projects and, as such, constitutes the data base for the Oregon Studies. This part (Part 1) of Volume IV contains profiles of five research and three evaluation projects along with information that describes the development of the profiles, explains how to read the profiles, and includes a glossary of common profile terms. Each profile contains three sets of data: (1) descriptors of general project characteristics, (2) descriptors of personnel working within the projects, and (3) descriptors of the work requirements within a project. The central data reported in a profile deal with project work requirements. In this regard, each profile describes the output of work effort; the standards established for those outputs; the operations required to produce outputs to specified standards, and the knowledge, skills, and sensitivities needed to carry out those operations. Related documents are EA 004 582-585 and EA 004 587-589. (Parts of pages xxxvi, 9, 47, and page 309 may reproduce poorly.) (Author/JH)

Final Report
Project No. 0-0701
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A project entitled, "The Generation of Information to Support Long-Term Manpower Studies of and Planning for Training Programs in Educational R, D, D, & E"

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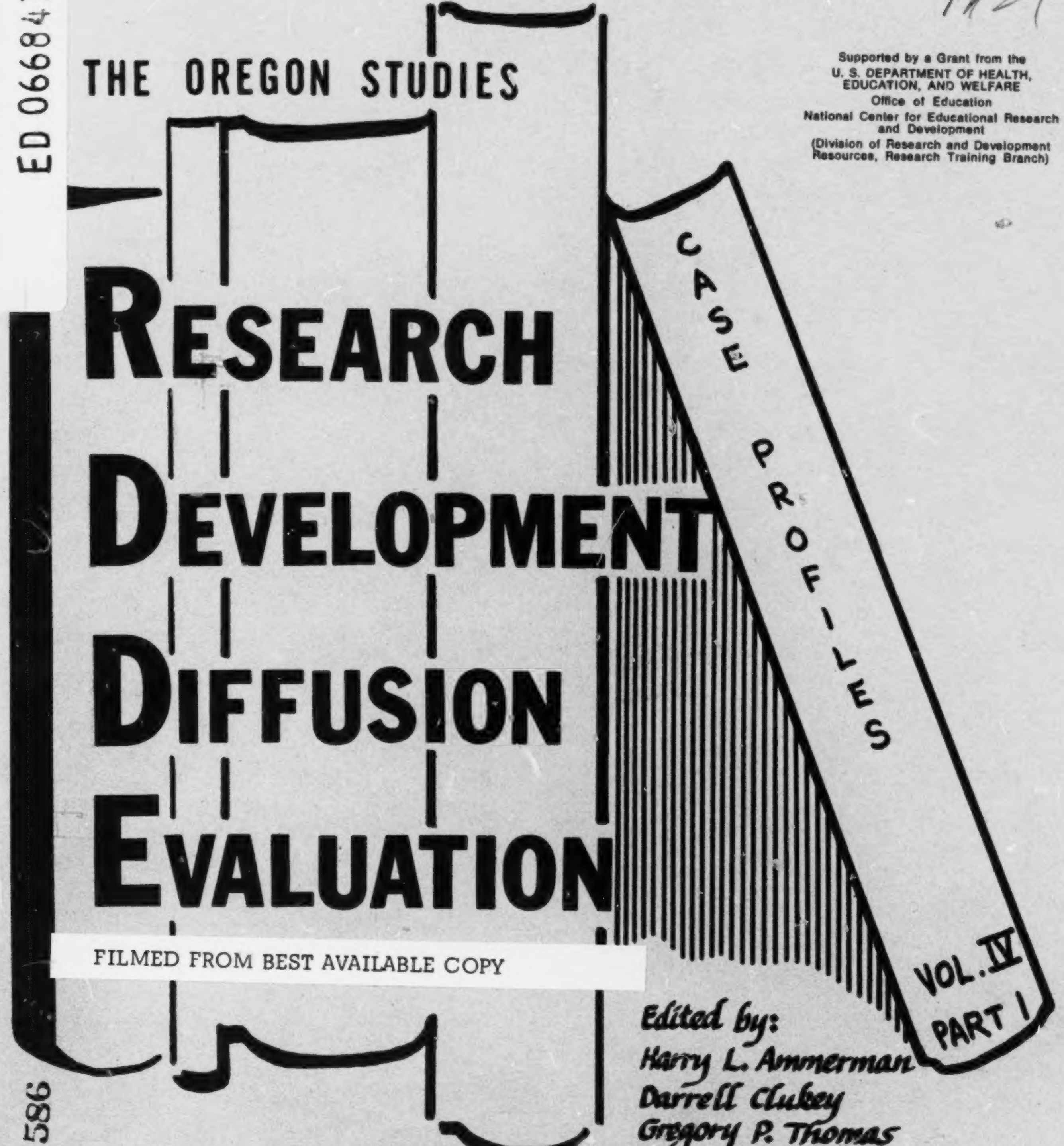
THE OREGON STUDIES



RESEARCH DEVELOPMENT DIFFUSION EVALUATION

CASE PROFILES

VOL. IV PART 1

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EA 004 586

TEACHING RESEARCH

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a division of the Oregon State System of Higher Education

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AN OVERVIEW OF THE OREGON STUDIES IN EDUCATIONAL RDD&E

In the spring of 1970 the Training Branch of the U.S. Office of Education, National Center for Educational Research and Development, announced a plan to effect change in the preparation of educational RDD&E personnel. Two factors led to the announcement. The underlying factor was the rather dramatic emergence in the past decade of development, diffusion, and evaluation activities as vehicles for educational improvement, and the attending need for qualified personnel to carry them out. The precipitating factor, however, was evidence that in spite of an investment of approximately 30 million dollars by the Federal Government to help training programs become more responsive to the personnel needs created by these new activities, essentially the same number and kind of personnel were being prepared in 1970 as in 1965.

The plan for change reflected a strategy that can best be described as "beginning at the beginning." It incorporated three interrelated lines of activity: the creation of a conceptual and empirical base on which to build functional training programs; the design of more effective and efficient approaches to training; and the development of instructional materials that reflect desired changes in both content and procedure. The propositions on which the plan rested were straightforward: (a) little was known about educational development, diffusion and evaluation activities, or how they related to educational research; (b) even less was known about the training of personnel to carry out such activities; and (c) until both of these conditions were remedied the likelihood of designing effective and efficient programs to prepare personnel to carry them out was slight. The plan as a whole was coordinated so that the various activities within it would be developed with sensitivity to each other, and so that they would come together in completed fashion at approximately the same point in time. (For additional details on the plan for change see Chapter I in Volume I of the series reporting the Oregon Studies.)

The Oregon Studies, carried out by the Teaching Research Division of the Oregon State System of Higher Education, were to contribute in a beginning way to the conceptual and empirical base called for in the plan. As such they were to produce five products: a collection of detailed "case study" descriptions of projects that illustrated exemplary RDD&E activities within various educational contexts; a reliable, economically feasible methodology by which to collect the data needed to prepare the case studies; a conceptual system or framework for viewing the domain of educational RDD&E that could be used as a guide to the classes of data to be attended to in the case studies; cross-project analyses that highlighted the similarities and differences observed in the projects described, and that tested in rudimentary fashion the adequacy of the conceptual framework underlying those observations; and a compendium of the existing literature that pertained to either the nature of or the interactions between activities labeled educational research, development, diffusion and evaluation. These products are reported in five volumes:

Volume I.	Summary Report (with Technical Appendices)
Volume II.	The Literature of Educational RDD&E Part One (Research, Evaluation, and Development) Part Two (Diffusion & Combinations of RDD&E)
Volume III.	Conceptual Frameworks for Viewing Educational RDD&E
Volume IV.	Profiles of Exemplary Projects in Educational RDD&E Part One (Research and Evaluation) Part Two (Development) Part Three (Diffusion)
Volume V.	A Methodology for the Study of Educational RDD&E

Each volume in the series reporting the Studies has been designed to stand alone, but because each volume reports a different product, and each product can be understood fully only in relation to the other products, two "reader's guides" to the series have been prepared. The first involves brief summaries or abstracts of the contents of each of the five volumes in the series. These appear on the inside of the back cover of the volume, and are intended to serve as a guide or overview to the series as a whole. A more detailed guide is provided by Volume I. In addition to serving as a general summary of the Studies, it contains descriptions of the developmental histories of the products reported in the various volumes, the relationships that exist between them, and the manner in which they have interacted over time. Accordingly, for the reader who wishes to determine quickly what each of the five volumes in the series contains, turn to the inside of the back cover of the volume; for the reader who wishes to understand how the volumes relate to one another, follow that by reading Volume I.

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Final Report

Project No. 0-0701
Grant No. OEG-0-70-4977

A project entitled, "The Generation of Information to Support Long-Term Manpower Studies of and Planning for Training Programs in Educational R, D, D, & E"

(Volume IV of five volumes)

THE OREGON STUDIES IN EDUCATIONAL RESEARCH, DEVELOPMENT, DIFFUSION, AND EVALUATION

VOLUME IV

PROFILES OF EXEMPLARY PROJECTS IN EDUCATIONAL RDD&E

Part One of Three Parts
(Research and Evaluation)

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ABSTRACT

This is one of five volumes reporting the results of the Oregon Studies in educational research, development, diffusion, and evaluation (educational RDD&E). It contains 20 case study profiles of educational RDD&E projects, and as such constitutes the data base for the Oregon Studies. The Volume is bound in Three parts. Part One contains profiles of five research and three evaluation projects; Part Two contains profiles of seven development projects; and Part Three contains profiles of five diffusion projects. Each part within the volume contains information that describes the development of the profiles, how to read the profiles, and a glossary of common profile terms. Each profile contains three sets of data: (a) descriptors of general project characteristics, e.g., objectives, timelines, organizational structures, and project "dynamics;" (b) descriptors of personnel working within projects, including background of training, work experience, and job role definition; and (c) descriptors of the work requirements within a project. Work requirement data include descriptions of the outputs that derive from a project, the standards held for those outputs, the operations required to produce outputs to the standards specified, and the knowledges, skills, and sensitivities drawn upon to carry out project operations. Nine hundred and sixty-two outputs of work effort were identified in the 20 projects. Two hundred and ninety-eight of these were analyzed for their work requirements. From this analysis 1148 descriptions of standards, 3722 descriptions of tasks, and 2974 descriptions of knowledges, skills, and sensitivities were obtained. One hundred and thirty-four professional persons were interviewed in collecting these data. The profiles are discussed in the preface to the volume from the point of view of their utility as scientific and training documents.

PREFACE

The present volume contains descriptive profiles of 20 educational research, development, diffusion, and evaluation (educational RDD&E) projects. The volume is bound in three parts. Part One contains profiles of 5 research and 3 evaluation projects; Part Two contains profiles of 7 development projects; and Part Three contains profiles of 5 diffusion projects. In addition, each part within the volume contains information that describes the development of the profiles, information that serves as a guide to reading the profiles, and a glossary of common profile terms. In combination, these materials should permit a reader to study the profiles with sensibility and understanding.

Each profile attempts to portray the essential characteristics of the project it describes and the realities of work requirements within it. Toward these ends, each profile describes: (a) the general characteristics of a project, e.g., objectives, timelines, organizational structures, and project "dynamics;" (b) the characteristics of personnel working within a project, including background of training, work experience, and job role definitions; and (c) the work requirements within a project.

The central data reported in a profile deals with project work requirements. In this regard, each profile describes the outputs of work effort, the standards established for those outputs, the operations required to produce outputs to specified standards, and the knowledges, skills, and sensitivities needed to carry out those operations. An overview of the data sets used to describe these variables and their interdependencies is provided in the reader's guide to the profiles. The rationale for and a full description of the data sets used is provided in Chapter 4 of Volume I of the series of volumes reporting the Oregon Studies.

The profiles were designed to serve the purposes of both science and training. In support of science the profiles serve three functions: (a) the careful description of phenomena of interest; (b) the development of a methodology by which to carry out such description; and (c) the development of a data base that permits parameter identification and comparative analyses. In support of training the profiles serve two functions: (a) they provide a means of gaining insight into the nature of and work requirements within individual educational RDD&E projects; and (b) they provide a means of gaining insight into the nature of and work requirements within the domain of educational RDD&E as a whole. Because these various concerns have combined to make the profiles as they are, each will be discussed briefly.

PROFILES AS BASIC SCIENCE DESCRIPTIONS. Individually and collectively the profiles provide accurate, reliable, and relatively exhaustive descriptions of ongoing RDD&E activities at the project level. All projects described are illustrative of the kinds of RDD&E activities likely to be funded in the decade ahead. The rationale for obtaining such descriptions involved a series of related propositions: (a) research, development, diffusion, and evaluation activities have served as powerful problem solving tools in a wide range of man's endeavors, e.g., medicine, agriculture, and industry, but as yet their systematic application within the context of education has been limited; (b)to have applicability within the context of education RDD&E activities must be adapted to fit particular demands of education; (c) to effectively bring about such adaptation, the demands of RDD&E within education must be understood; (d) at the time that the Oregon Studies were undertaken little was known about educational development, diffusion, and evaluation activities, about how such activities related to educational research, or about how any or all activities related to the improvement of education; and (e) in order to understand matters not understood it is wise to begin by describing them in detail. The rationale for reporting such descriptions in case profile format was less complex: It invited a more detailed description of project characteristics and activities than might otherwise be provided. This was assumed to be true for both the identification of the variables to be attended to in describing projects and the exploration of the interactions of those variables.

PROFILES AS METHODOLOGICAL PROVING GROUND. The decision to describe educational RDD&E projects in case profile terms required that a methodology be developed that would generate "case study" data. The development of such a methodology became a primary focus of the Oregon Studies, and the preparation of profiles was, to a large extent, a natural culmination of that focus. Two assumptions accompanied the emphasis on methodological development: (a) the Oregon Studies represented the first in a series of empirical studies to be undertaken on the nature of educational RDD&E; and (b) greater benefits would accrue to education over the long term by directing limited resources to the development of strong methodology than would accrue had the investment of resources been directed to the collection of large amounts of data with a weaker methodology.

As a proving ground for methodology, the profiles provided a basis for making two kinds of judgments: (a) judgment as to the sophistication of the methodology, i.e., the extent to which the methodology generates accurate, reliable, and reasonably exhaustive descriptions of educational RDD&E activities; and (b) judgment as to the robustness of the methodology, i.e., the extent to which the methodology can be applied to widely varying projects with equally productive results. Evidence as to sophistication was obtained by submitting completed profiles of projects to the directors of those projects for review and approval. In all cases the profiles met the criteria of sophistication outlined above (see the Notes on the Development of the Profiles for project director evaluations). Evidence as to robustness was obtained by applying the methodology to the 20 projects described in the present volume. These projects varied widely, and it was assumed that if the methodology was indeed adequate in terms of its robustness each of the 20 projects could be described with equal facility. It was also assumed that the data generated in relation to each project would be roughly comparable. As will be seen upon reading the profiles, those criteria have been met. An overview of the methodology is provided in the reader's Guide to the profiles. A detailed description of the methodology, as well as a description of the manner in which it evolved, is provided in Volume V of the series of volumes reporting the Oregon Studies.

PROFILES AS A DATA BASE FOR PARAMETER IDENTIFICATION AND COMPARATIVE ANALYSES. The decision to view the profiles as a data base for identifying or "mapping" the parameters of the domain of educational RDD&E emerged as a logical extension of the two previously discussed profile functions. Since extensive descriptive data on the nature of educational RDD&E were to be made available as a result of profile development, and since profiles were to be prepared for widely varying projects to test the robustness of a methodology, the selection of the projects to be described was approached from the point of view that they represent a sample of the projects that exist within the domain of educational RDD&E as a whole. Given the small number of projects that could be described in case study form with the resource base available, and given the variability that was to be reflected in those projects, no illusions were held about the representativeness of the sample that could be drawn. At the same time, it was reasoned that if the projects to be described sampled at all well the variability that existed in projects within the domain, the descriptions of those projects would provide at least a beginning base for sketching an "outline map" of the parameters of the domain. As an outgrowth of this kind of reasoning, it was decided that projects should vary systematically with respect to major sources of variability in educational RDD&E projects as a whole. Accordingly, the 20 projects described vary as to focus (research, development, diffusion, and evaluation), size (a funding base of less than $100,000 per annum, between $100,000 and $250,000 per annum, and over $250,000 per annum), and setting (public schools and state departments of education, colleges and universities, publicly funded laboratories and R&D centers, and privately funded R&D centers). A description of the procedures followed and criteria used in selecting the 20 projects is provided in Chapter 3 of Volume I of the series of volumes reporting the Oregon Studies.

As a data base for mapping the domain of educational RDD&E, the profiles actually serve two functions: (a) they provide a basis for mapping the parameters of the domain; and (b) they provide a basis for mapping the commonalities or central tendencies of the domain. As a basis for parameter mapping the profiles constitute an excellent source of data. Even though the project sample is small, and the absolute data base on which to prepare maps limited, projects have been selected so as to insure that they are reasonably representative of the range of projects to be found within the domain of educational RDD&E. Thus, the range of personnel employed in the 20 projects described, the range of project strategies followed, the range of organizational structures used, the range of outputs produced, the range of tasks performed, the range of standards held, and the range of knowledges, skills, and sensitivities drawn upon in their execution can be assumed to be reasonably representative of the range of such things to be found within the domain as a whole. The technical appendices that accompany Volume I of the series of volumes reporting the Studies summarize these data.

Given the sampling strategy that was followed, it is obvious that the profiles constitute a much weaker data base for mapping commonalities or central tendencies. Clearly, the sample was drawn to highlight the parameters of the domain rather than its central tendencies. Nevertheless, the data are amenable to central tendency analyses, and they were undertaken. The "outline maps" presented in Chapters 6, 7, and 8 of Volume I of the series of volumes reporting the Oregon Studies summarize these data.

PROFILES AS TRAINING AIDS. As the most detailed descriptions of ongoing RDD&E activities available, it was anticipated that the profiles could serve a valuable training function. Readers should find, for example, that they illustrate the nature of the work found within educational RDD&E projects, the nature of the tasks involved in carrying out that work, the knowledges, skills, and sensitivities needed to carry it out, the interpersonal and interagency dynamics involved in project operation, etc. Such information should be of value to students preparing to enter the field of educational RDD&E, staff who have just entered the field, or project directors who need to provide on the job training.

PROFILES AND CROSS PROFILE ANALYSES AS A BASIS FOR TRAINING PROGRAM DESIGN. By treating each of the 20 profiles as reliable descriptions of "what life is like" within the context of educational RDD&E projects, by treating the summated data as a trustworthy description of the range of project activities within the domain as a whole, and by having at hand whatever central tendency data that can be gleaned from the comparative analyses of projects, the designer of training programs should be in a position to make reasonably informed decisions as to what the focus and content of those programs should be. In combination these data begin to provide the designers of training programs with a sense of the arena within which educational RDD&E personnel must function, and with a sense of what has to be done to function effectively within that arena. Chapter 14 of Volume I of the series of volumes reporting the Oregon Studies spells out some of the implications that derive from these various data sources for the design of training programs.

A wide range of persons have been involved in the preparation of the profiles. In fact, nearly all persons involved in the Oregon Studies have contributed in one way or another, for essentially all activities undertaken within the studies have pointed towards profile production. Since other volumes detail the activities that have been related to profile development, e.g., the development of the methodology used to collect the data reported in the profiles (Volume V) and the development of the conceptual framework that guided the methodology (Volume III), the persons involved most directly in those activities need not be recognized here. Those who have been most directly involved in profile preparation do, however, and the purpose of the following paragraphs is to make that recognition public.

It is proper to acknowledge first those persons in the U.S. Office of Education who had the wisdom and courage to insist upon the development of case profiles, and their accompanying methodology, as the primary outputs of the Oregon Studies. In this regard the efforts of Ms. Cora Beebe and Drs. John Egermeier, Sue Klein, and Paul Messier deserve special recognition. So do the efforts of Dr. John Hopkins of Indiana University, the U.S. Office of Education's special consultant to the project. The contributions of these five people to the design and implementation of the case profiles and the supporting methodology have been of inestimable value. Also deserving of recognition is the role played in the project by USOE project officers. Their willingness to review projects to help in identifying those that appeared to meet the criteria for inclusion in the Oregon Studies was clearly beyond their established duties. My thanks to all in USOE who have given so much.

I wish to express my thanks also to the directors of the various projects for which case profiles were prepared, and to their staffs. It is not easy to give up as much as three days of time when conducting a major RDD or E project, or to release major staff members for as much as a day or a day and a half to do other than project work. Participation in the Oregon Studies represented a sizeable investment of these people's time and energy, and I wish to express my deepest appreciation for their willingness to make such an investment.

Finally, I wish to express my thanks to the staff of the Oregon Studies who were responsible for data collection, reduction, and profile preparation. Since so many have been involved, and in so many different ways, I will simply list names by activity. Thus, the task of refining the criteria for project selection, identifying projects that met those criteria, and making initial contact with those projects relative to participation in the study: the team of Mr. Steve Anderson, Mr. Darrell Clukey, Dr. Dale Hamreus, and Dr. Jim Nord; the task of making site visits for purposes of final project selection: the team of Dr. Harry Ammerman, Dr. Dale Hamreus, and Mr. Greg Thomas; the task of data collection, reduction, and initial profile preparation: Mr. Loring Carl, Mr. Norman Crowhurst, Mrs. Lee Green, Mr. Herb Hill, Mrs. Diane Jones, Dr. Rod Myers, Dr. Jim Nord, Mr. Dean Pielstick, Mr. Clark Smith, and Mr. Greg Thomas; the task of profile editing and refinement: Dr. Harry Ammerman, Mr. Loring Carl, Mr. Darrell Clukey, Dr. Kevin Morse, and Mr. Greg Thomas; the task of coordinating and scheduling the interview teams: Mr. Greg Thomas; the task of interview team training, and the task of administering quality control checks on all data reduction: Mr. Loring Carl and Mr. Clark Smith; the task of tracking all data from the time it came in from the interview teams until it was organized and presented within a completed case profile, including the task of editing each profile to assure consistency and quality: Mr. Darrell Clukey; the task of transferring the reduced data to computer storage, the preparation of computer programs for the analysis of the data, and the execution of those analyses: Mr. Bill Hickok; the task of overall activity coordination: Dr. Harry Ammerman.

My deepest thanks to all for tasks well done.

H. Del Schalock
Director of the Oregon Studies

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(separately bound)

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Norman H. Crowhurst

Educational Resources Information Center Processing and Reference Facility
Norman H. Crowhurst

Children's Television Workshop
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The Assessment of Exemplary Reading Programs
R. E. Myers

NOTES ON THE DEVELOPMENT OF THE PROFILES

Fourteen specifications guided the development of the profiles that appear in the present volume. Seven of the 14 pertained to the content of the profiles.

1. They were to accommodate widely varying data within a standard format, that is, a single format was to accommodate data emerging from an "evolving" case study methodology that was to be applied to projects of widely varying characteristics;
2. They were to convey both the "essential" features of a project (as opposed to every possible feature), and the "realities" of work within it;
3. They were to include a description of the context within which a project was operating;
4. They were to include both, but discriminate between, subjectively and objectively derived data;
5. They were to include the "raw" data from which categorized data emerged;
6. They were to highlight the training implications that emerged from the study of a particular project; and
7. They were to avoid description of the substantive content of a project, except as needed to understand a project within the context of the profile.

Four specifications pertained to the form of the profiles:

1. They were to preserve the anonymity of persons within projects;
2. They were to be candidly written, but without evaluative overtones and without reference to outside standards for comparative purposes;
3. To the extent possible, each profile was to make a unique contribution to the set of profiles (thus allowing individual differences between profiles with respect to degree of emphasis on various classes of data, depth of detail, etc.); and
4. They were to be readable and understandable by persons just entering the field.

Three specifications pertained to the means by which the profiles were prepared:

1. The profile design, and the linkage of that design to data, was to be such that persons relatively unskilled in professional report writing could, without elaborate training, assemble and prepare a profile;

2. Profiles were to be prepared and made available for review and/or use as soon as possible after the analysis of a project had been completed; and

3. Profiles were to be approved before publication by the directors of the projects described.

In sum the task of the Oregon Studies was to develop a procedure and a format for writing profiles that would display widely differing kinds of data from widely differing projects in a manner that would be easily understood, and that would allow for comparability across projects while retaining the ability to present characteristics idiosyncratic to individual projects. Furthermore the procedure and format were to accomodate the variability introduced in data by an "evolving" methodology, and were to be able to be applied by persons with little or no experience in formal report writing. The profiles reported in the volume meet or have met these specifications.

Procedurally, profile design progressed through six identifiable stages. The first stage occurred prior to data collection activities, and involved the outlining of alternative profile formats for anticipated data. These were prepared for conference review in conjunction with the first review of the proposed methodology (July 1970). In the second stage of development, alternative profile formats were prepared for a single project using trial data collected on that project. These were prepared for conference review in conjunction with the second review of the methodology (October 1970). It was through these two external review conferences that most of the specifications relative to the development of the profiles emerged.

The third stage in the evolution of the profiles involved the development of a format that accommodated both the specifications that had been developed, and the data that were by then emerging from application of the methodology. Four profiles were prepared according to this format, and submitted for conference review in conjunction with the third external review of the methodology. This was held in March 1971, and constituted the last formal review of the profile format. In all three of the external review sessions, participants included the consultants to the Oregon Studies, training program directors, U.S. Office of Education personnel, and the authors of the conceptual papers that appear in Volume III of the series of volumes reporting the Oregon Studies.

Following the March review, the profile format went through three additional "fine tuning" stages in its development. The first of these (Stage 4 in the development of the profile formats) incorporated both the recommendations received at the March conference and the subtle shifts that occurred in data collection strategy following that conference. Six profiles were prepared using this particular format. The next to last refinement in format (Stage 5) reflected the final refinement in data collection methodology, and was used in describing the remaining 10 projects analyzed. The final refinement in format (Stage 6) involved an internal review of the total set of profiles from the point of view of standardizing terminology, table headings, and category labels.

Because of the evolution of data collection methodology and profile format during the course of the Oregon Studies, it was not possible to achieve complete standardization across profiles. The first four profiles prepared contained data that were sufficiently different from the data reported in the next six, and the data reported in those six were sufficiently different from that reported in the last 10, that differences between the three sets could not be eliminated by the final refinement effort. As a consequence, the total collection of profiles reflect three recognizably different formats, as well as three slightly different data sets. All profiles contain the same basic chapter organization, however, and the same major headings within chapters, so differences between profile sets are minimal. The GUIDE TO READING THE PROFILES has been designed both to introduce the reader to the substantive content and organization of the profiles, and to place the differences in profile format in perspective. Chapter 4 of Volume I of the series of volumes reporting the Oregon Studies traces the implications of profile format differences for cross-project analyses.

A number of procedures were adopted as guides to the preparation of profiles. Profile writers were always members of the data collection team and they always knew in advance when they were to serve as writers. To insure consistency across writers, chapter titles, major headings within chapters, data tables and figures, and data sources were standardized. During the actual process of preparing the profiles, writers were instructed to make use of all record forms, tape recorded interviews, and data presentations. Debriefing sessions conducted with the members of the data collection team were held to further the writer's understanding of both the project as a whole and the data collected in relation to it.

Profile drafts were given substantive critiques by all members of the data collection team, and editorial critiques by at least two other Oregon Studies staff. Where extensive revisions were needed, the revised drafts were subjected a second time to a complete review and critique process. Upon completion, each profile was submitted for review and approval to the responsible officer of the project being described. The last five profiles submitted to project officers were accompanied by a profile rating sheet in order to obtain specific information as to their adequacy. The results of these ratings are summarized in Table 1.

TABLE 1

Frequency of Ratings as to Profile Adequacy
(N = 5)

Focus of rating	Rating Schedule A	B	C
1. Description of organizational structure	5	0	0
2. Description of organizational operations, interrelationships	4	1	0
3. Description of the ends being sought by the project	4	1	0
4. Representativeness of all outputs indexed (Ch. II)	3	2	0
5. Representativeness of the outputs analyzed (Ch. III)	4	1	0
6. Accuracy of the data presented on outputs (Appendix)	4	1	0
7. Overall representativeness of the Profile	4	1	0

Rating Schedule

Check box A, B, or C as follows:

A = Representative of a majority of operational concerns.

B = Representative of only a part of operational concerns (concerns of significant proportions omitted).

C = Major concerns not covered.

A GUIDE TO READING THE PROFILES

Since the profiles are relatively complex documents, and since they vary in format (see NOTES on the development of the profiles), a guide to their reading has been prepared. The guide is designed to orient the reader to (a) the classes of data reported in the profiles, (b) the procedures followed in collecting those data, (c) the trustworthiness of those data, and (d) the manner in which the data have been organized within the profiles. If used in conjunction with the NOTES on the development of the profiles and the GLOSSARY of profile terms that also appear in the volume, a reader should have no difficulty in making his way through the profiles.

Classes of Data Reported in the Profiles

As indicated in the preface to the volume three major classes of data are reported in each profile: (a) descriptors of general project characteristics; (b) descriptors of project personnel; and (c) descriptors of project work requirements. Work requirement data are reported both in terms of work activities associated with job roles and work requirements associated with project outputs. The data sets that comprise these various data classes are described briefly in the paragraphs that follow. The rationale for and full description of the data sets appear in Chapter 4 of Volume I of the series of volumes reporting the Oregon Studies.

Data Sets Used in Describing the General Characteristics of Projects

Five data sets are used to describe the characteristics of a project as a whole: (a) the objectives of, rationale for, and contributions to be made by a project; (b) the timelines established for completing work within a project; (c) the organizational structure within which the work of a project is carried out; (d) the political-institutional-intellectual context within which a project rests; and (e) the "dynamics" of project operation. The first three data sets are self-explanatory. Context data pertain to the relationship of the project being studied to its sister projects, to the activities of the administrative unit within which it rests, and to the broader political-institutional context within which it rests. These relationships are portrayed in the form of a "context map."

As used in the Oregon Studies, "project dynamics" is a catch-all term that involves information pertaining to procedures, feelings, patterns of behavior, or anything else that can be used to convey a sense of either the "essence" of or the "reality" of working within a particular project. The focus of that which is reported may be project operations, factors influencing project operations, and/or the consequences of project operations. Operationally, the data pertaining to project dynamics involves the pooled perceptions, observations, hunches, and insights gained by the staff of the Oregon Studies during the three to five day on-site visit required for project analysis.

No formal category sets have been developed for coding any of these data. All are reported in the form of narrative statements within the context of the case profiles.

Data Sets Used in Describing Project Personnel

Three data sets are employed in describing project personnel: (a) the background of training and work experience of professional staff; (b) a description of the job or jobs held by professional staff; and (c) the support services and resources available to staff in the performance of their respective job roles. All of the data within these sets are reported in terms of questionnaire items.

Data Sets Used in Describing Work Activities Associated With Job Roles

Two data sets are employed in describing work requirements associated with job role: (a) the perceived requirements associated with a particular job held; and (b) the emphasis given to various classes of work activities within the context of a particular job held. These data are also reported in terms of questionnaire items.

Data Sets Used in Describing Work Requirements Associated With the Production of Project Outputs

Four data sets are employed in describing work requirements associated with the production of project outputs: (a) the outputs of work effort per se; (b) the standards held for those outputs; (c) the operations required to produce specified outputs to specified standards; and (d) the knowledges, skills, and sensitivities required to carry out those operations. These are the primary data sets reported in the profiles, and as such they are far more complex and extensive than the other data sets reported.

In attempting to describe the outputs of projects, and the standards, operations, and enablers that relate to them, it was necessary to establish a number of category sets to handle the complexity that was found. Two approaches were taken to the development of these sets: (a) a conceptual-empirical (deductive) approach; and (b) an empirical-conceptual (inductive) approach. In the former, category sets were developed as an extension of the conceptual framework that guided the Studies;[1] in the latter, they were developed in response to the data emerging from the study of ongoing projects.[2] Operationally, however, the two approaches were complementary, for the conceptual-empirical approach yielded category sets that functioned as relatively broad, general organizers of the data, and the empirical-conceptual approach yielded category sets that functioned at a "close to the source," descriptive level. Figure 1 provides a summary of the conceptually derived sets used to organize information about project outputs, standards, operations, and enablers. Figure 2 provides a summary of the empirically derived category sets used to organize the same information, that is, statements describing work requirements in the language of persons working in the field. The various primary and cluster categories that make up these sets, as well as the procedures followed in their development, are described in Chapter 4 of Vol. I of the series reporting the Oregon Studies. The number of data statements (interviewee statements) classified within these various category sets include 1148 that are

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[1] For a description of the conceptual framework that guided the empirical thrust of the Oregon Studies see Schalock, H.D. and Sell, G.R., "A Framework for the Analysis and Empirical Investigation of Educational RDD&E," in Chapter 4 of Volume III of the series of volumes reporting the Oregon Studies.

	OUTPUTS	STANDARDS	OPERATIONS	ENABLERS
STRUCTURE	Products Events Conditions	Output Process		Knowledge Skill Sensitivity
FUNCTION	Policy Setting Management Production			
CHARACTER	Knowledge Technology Implementation Information			
LEVEL	Focal Component Facilitating		Activities Tasks* Actions	

FIG. 1. Category sets used to describe at a broad, conceptual level the properties of outputs, standards, operations, and enablers.

*Of this set, only task level descriptions were obtained. Time and resources did not permit an analysis of operations at the level of actions, and the activities set was left to be derived empirically.

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[2] To some extent this is an over simplification, for the conceptually derived categories were tested empirically in the course of their derivation, and the empirically derived categories were always influenced by conceptual considerations. (See Chapter 2 in Volume I of the series of volumes reporting the Oregon Studies, or Volume V, for a discussion of the procedures followed in the development of the methodology.)

descriptive of output standards, 3722 that are descriptive of output related tasks, and 2497 that are descriptive of output related enablers.

	OUTPUTS IDENTIFIED	OUTPUTS ANALYZED	STANDARDS	TASKS	ENABLERS
Number of PRIMARY Categories Used to Classify Interviewee Statements	299	167	79	280	136
Number of CLUSTER Categories Used to Classify Primary Categories	51	46		20	

FIG. 2. Category sets used to describe at a "close to the source," empirically derived level the properties of outputs, standards, tasks, and enablers.

The Interdependence of Data Sets

As indicated in the preface, each case profile was to describe not only the variables listed in the preceding paragraphs, but their interdependencies as well. This in turn required that a way be found to collect data on those interdependencies. Accordingly, a schema was developed which placed the full set of variables within the context of an interacting whole. Within this context OUTPUTS were adopted as central, that is, all other data sets were linked to them. Procedurally, this required that outputs of work effort within a project be identified, a set of these be selected for analysis, and for each output analyzed establishing the STANDARDS set for its production, the OPERATIONS required for its production, the ENABLING KNOWLEDGES, SKILLS, and SENSITIVITIES needed for its production, the PERSONS involved in its production, and the RELATIONSHIP of that output to the other outputs involved in the work of a project as a whole. It was also possible to link a particular output to the organizational structure of a project, the context within which the project rested, and even the "dynamics" of a project, though not so directly as in the case of variables that depended upon output linkage for their definition. The interaction of these various classes of data is illustrated schematically in Figure 3.

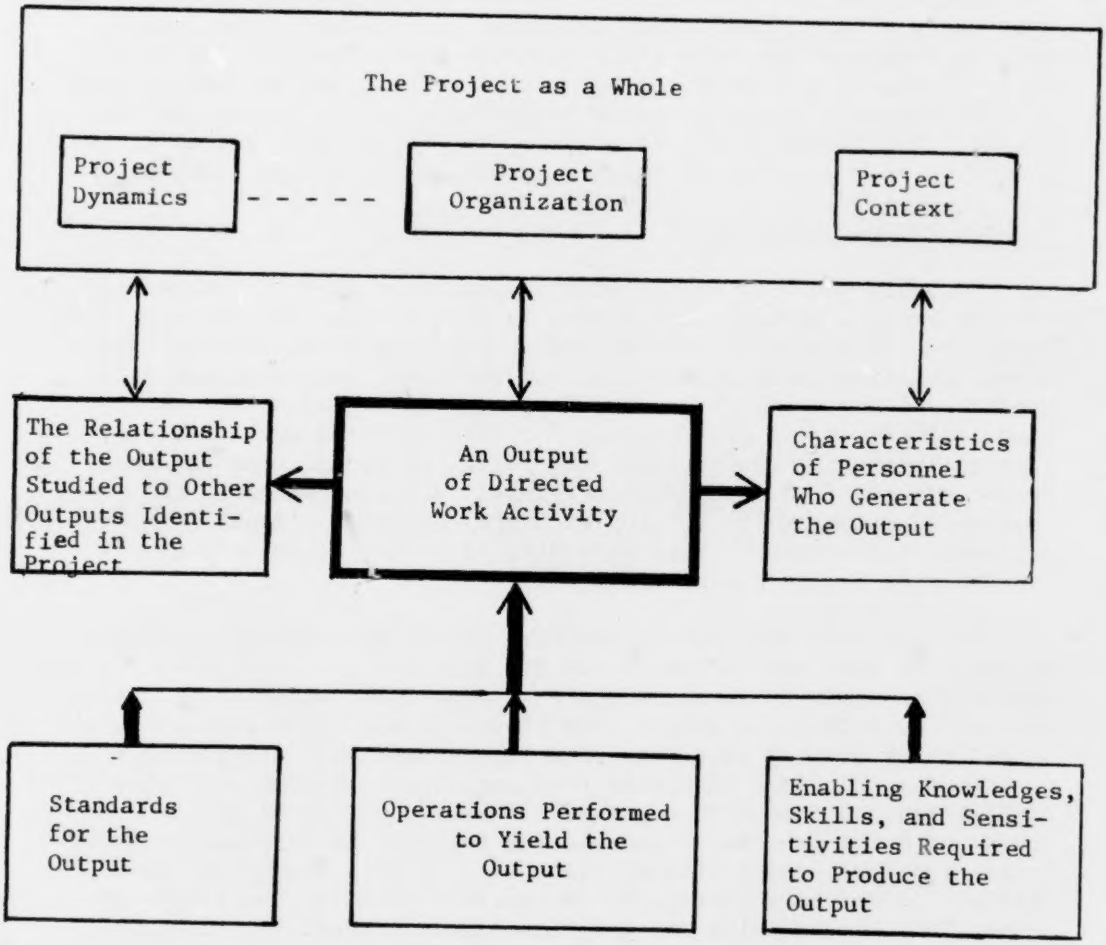
The Project as a Whole
Project Dynamics
Project Organization
Project Context
The Relationship of the Output Studied to Other Outputs Identified in the Project
An Output of Directed Work Activity
Characteristics of Personnel Who Generate the Output
Standards for the Output
Operations Performed to Yield the Output
Enabling Knowledges, Skills, and Sensitivities Required to Produce the Output

FIG. 3. Classes of information sought in describing a project, and their relationship to outputs of work effort.

Procedures Followed in Data Collection

Three relatively distinct procedures were employed in collecting the data reported in the profiles. By and large these corresponded with the three major classes of data collected. All data, however, were collected within the context of an "on-site" visit by a data collection team from the Oregon Studies. Depending upon the size and complexity of a project, teams consisted of from two to six people, and the length of the site visit extended from three to five days. An overview of the procedures used in collecting the various classes of data reported in the profiles is provided in the paragraphs that follow. Additional detail is provided in Chapter 4 of Volume I, and in Volume V, of the series of volumes reporting the Oregon Studies.

General Project Descriptors

Probably the best label for the procedures used in collecting data on general project descriptors is that of "non-obtrusive." The objectives of a project, the rationale for a project, project time lines, organizational structures, and the like, were obtained from project proposals and other documents descriptive of the project. Also, information on the "dynamics" of the projects were gathered through incidental observation, the recall of casual comments made by project staff while being interviewed, and the "hunches" or "insights" gained while working with project data. Almost without exception these sets of data were able to be collected without intrusion upon people's time and energy.

The one data set used to describe the general characteristics of projects that was intrusive was the data set that described the context within which the project rested. Some information of this kind was usually able to be gained from proposals and other documents, but in all cases project directors were interviewed when developing a context map. In some instances this amounted to little more than confirmation of information gained elsewhere, but in others it involved both the generation and piecing together of information about intra- and inter-institutional linkages that were simply not made explicit in existing materials. Generally speaking, the larger the project the more complex its political-institutional-intellectual linkages, and in some cases, for example the Children's Television Workshop, the development of a map to depict these linkages was a major undertaking.

Personnel and Work Activity Descriptors

All of the data that describe the personnel associated with a project, and all of the data that describe work activities associated with job roles, were collected through questionnaires. These were administered by members of the Oregon Studies staff, either while visiting the project site or through telephone. Three questionnaires were involved: (a) a general project questionnaire; (b) a job/task inventory; and (c) a general activities questionnaire. The data reported from the three questionnaires are referred to in the profiles as form 02, 03, and 04 data respectively. Copies of the three questionnaires may be found in Volume V of the series of volumes reporting the Oregon Studies.

Output and Work Requirement Descriptors

All data on outputs and work related to their production were collected through interview. The interview strategy called for: (a) identifying outputs associated with a project (an output index); (b) ordering those outputs according to their interdependencies (an output map); (c) selecting from the map those outputs for which work requirement data were to be obtained; (d) identifying persons most directly responsible for and/or most directly involved in the production of those outputs; and (e) interviewing those persons in relation to the standards held for the output being analyzed, the tasks required to produce the output, and the knowledges, skills, and sensitivities needed to perform the required tasks. The selection of outputs to be analyzed was done by the data collection team, on site, after an output map had been established and a sense had been gained as to the outputs that were most critical to the project. Persons interviewed provided information relative to his or her own contribution to the production of a particular output, as well as the contributions of others (a distinction between self-other data was maintained throughout the project.) As familiarity with a project grew, adjustments were made as needed in the output map, the selection of outputs to be interviewed around, and the matching of interviewees with outputs. All interviews were tape recorded, and all data were reduced from the recordings by the person who did the interviewing.

The reduction of the interview data involved a multistep process: (a) editing tapes to identify data statements within them, that is, statements pertaining to standards, tasks, and enablers; (b) the recapitulation, or "recapping", of data statements into a readable, grammatically correct form, that is, independent clauses and/or sentences (care was taken not to destroy the original language of the interviewees in this process); (c) the transfer of the recapped statements to color-coded summary sheets that corresponded to the various data sets being used; (d) the coding of the recapped statements by a two person coding resolution team (during this process the coding team was free to call upon members of the data collection team for statement clarification, interpretation, context building, etc.); and (e) the storage of the coded data in computer files in a way that permitted the interdependencies within the data to be maintained. A record of all steps in the data collection and reduction process was maintained from the time of first contact with a project until all data on that project had been computer stored and verified.

The Trustworthiness of the Data

Since the classes of data reported in the profiles were collected by various means, each must be considered separately as to its trustworthiness. Accordingly, the potential sources of error that reside within each data class, and the steps taken to control them, are reviewed in the paragraphs that follow.

General Project Descriptors

Four of the five data sets used to describe the general characteristics of projects made use of working documents. These included project objectives, timelines, organizational structures, and context maps. Typically, the document used had been prepared by project directors. To the extent that such documents can be accepted at face value, and to the extent that the Oregon Studies staff did not introduce error in reporting the substance of those documents, the data sets that made use of them were subject to few sources of error. As a consequence, no formal measures of trustworthiness were prepared for them.

Judgments relative to the trustworthiness of the data reported on project dynamics is another matter. It will be recalled that these data consist of the pooled observations, hunches, "insights," and choice tidbits of information gleaned by members of the data collection team from a wide variety of sources. It will also be recalled that these data intentionally were to be subjective and impressionistic. As a means of reducing gross error all final descriptions of the dynamics of projects were read and confirmed by all members of the data collection team that visited a project, but no formal measures as to the trustworthiness of such data were obtained. For purposes of profile presentation, however, the data on project dynamics are reported.

Personnel and Work Activity Descriptors

Since the data sets describing personnel and work activities were derived through questionnaire methodology they were subject to all the sources of error known to operate within that methodology, for example the error that is introduced through the selection of questions asked, the possibility of multiple interpretations of those questions, and the lack of opportunity to determine falsification or shoddiness of response to the questions. The steps taken to control these sources of error were of two kinds: (a) reasonable care in the development and testing of the questionnaires prior to their utilization for purposes of data collection; and (b) the administration of the questionnaires while the data collection team was on site. The first step involved a number of field trials of the questionnaires, and a number of revisions in them on the basis of those trials. The second allowed the questionnaires to be introduced within the context of the data collection effort as a whole, and within that context an opportunity to clarify troublesome questions about or within them. In combination, it is believed that these procedures sufficiently reduced the typical sources of error that enter the collection of questionnaire data that the data reported can be viewed with a fair degree of confidence.

Output and Work Requirement Descriptors

Just as the personnel and work activity data were subject to the error typically associated with use of questionnaires, the output and work requirement data, since it was collected through interviews, were subject to the error typically associated with interviews. Four sources of error have always been troublesome in this regard: (a) the selection of interviewees as data sources; (b) the information elicited from interviewees about work requirements; (c) the coding of the information obtained from interviewees; and (d) the storage, retrieval, and analysis procedures used in manipulating the coded data.[3] The procedures followed in the Oregon Studies to combat these sources of error are summarized in Table 1. Given the procedures followed, and the coding reliability obtained, it seems reasonable to view the output and work requirement data with a good deal of confidence.

Profile Organization

It will be recalled from reading the NOTES on the development of the profiles that three variations in profile format will be found in the present volume. These correspond to variations in the nature of the data collected at various points in the Studies, and represent one of the less fortunate consequences of the decision to emphasize methodological development (see Preface). Although the differences in the data presented in the three profile formats are not great they can be confusing to a reader when first encountered. The purpose of this section of the GUIDE is to introduce the reader to the general organization of the profiles, and to spell out how the two earlier profile formats (Formats 1 and 2) differ from the final format (Format 3).

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[3] When the profiles are being considered as a data base for cross-project analyses, other sources of error must be considered. Two critical sources are (a) the adequacy of the sample of projects drawn and (b) the adequacy of the sample of outputs selected for analysis within a given project. These are sources of error that relate to the generalizability of data, however, and are not of primary concern in considering the case profiles as descriptions of individual projects.

TABLE I

Procedures Followed in Controlling Sources of Error
In Output-Work Requirement Data

SOURCE OF ERROR	PROCEDURES FOLLOWED TO REDUCE ERROR
Interviewee Selection	Only staff intimately acquainted with or involved in the production of an output were selected for interview. The relationship of the interviewee to an output was always confirmed by the project director, the person to be interviewed, and the immediate supervisor of that person. Data reported by an interviewee on the work of others in relation to an output were noted and coded separately.
Data Generation	A structured interview procedure was used to obtain data on the standards, tasks, and enablers associated with a particular output. In the interview, standards were the first to be identified, followed by the tasks engaged in to produce the output to those standards, followed by the knowledges, skills, and sensitivities drawn upon in carrying out the tasks identified. Stylistic variations in interviewing were permitted so as to accommodate either interviewer or interviewee differences, but during the course of an interview all data sets were exhausted. (For a detailed discussion of interview procedures see Volume V of the series of volumes reporting the Oregon Studies).
Data Reduction	A carefully established set of procedures and decision rules were followed in "recapping" the interviewee statements, and in coding the recapped statements in terms of appropriate data sets. The recapped statements were first checked for their completeness and adequacy by the data coordinator upon the return of the data collection team from a project site. They were checked again by the coding team. Incompleteness, or error, or lack of clarity detected on either of these checks required that the recapped statements be revised until they were acceptable at both quality assurance checkpoints. To insure reliable coding, team coder agreements were calculated. Using the recapped statements in three case profiles as a base for calculating coder reliability, and separating first and second codings by a three month period, coding agreements for items in each data set, with one exception, ranged between .69 and .96. Reliability in coding task statements was .60. Detailed coder reliability data are reported in Chapter 4 of Volume I of the series of volumes reporting the Oregon Studies.
Data Storage and Retrieval	As soon as the recapped statements had been coded for a particular project the codes were forwarded to the data coordinator for a check of their completeness, and then forwarded to the coordinator of data storage and retrieval for transfer into computer storage. After storage, repeated checks were run to insure that the initial computer entries were correct, and the computer center manipulations over time had not destroyed or reordered the data as it was originally stored.

Profile Format 3

Ten profiles in the volume meet the most advanced format requirements.[4] These are profiles 1, 2, 6 and 7 in Part One of the volume; profiles 9, 10, and 11 in Part Two; and profiles 16, 17, and 18 in Part Three. As a set these profiles reflect the most advanced form of the data collection methodology, were the last to be prepared, and appear as the first profiles to be read in any of the three parts to the volume, as well as the first to be read in the Evaluation section of Part One. Also, all are organized into six chapters: an Overview; a Description of the Parameters of the Project; a Summary of Data; Supplementary Data; Project Dynamics; and Implications for Training. Each profile also contains an Appendix that houses the "recapped" data statements from which the output-work requirement data summaries have been prepared.

An overview of the contents of each chapter in the format 3 profiles follows. It will be seen from these overview statements that the three classes of data collected on a project are collapsed and/or integrated for purposes of their presentation within profiles.

CHAPTER I: OVERVIEW. This chapter provides the first view of a project as more than a title. It provides an orientation to the nature of the project, its goals, and its reasons for being, and serves as the framework into which the balance of the profile data are fit. Structurally, the overview chapter consists of the following parts:

(a) Synopsis of the Project
(b) Objectives, Rationale, and Significance of the Project
(c) Context in Which the Project Operates

Chapter I is generally not more than 6 pages in length, and it is designed as an "abstract" so that readers may determine whether they wish to read the profile as a whole.

CHAPTER II: PARAMETERS OF THE PROJECT. Chapter II emphasizes, and makes quickly available, a first set of "hard" data about a project. Standard sections include:

(a) Staff structure;
(b) Project roster;
(c) Index of outputs;
(d) Output map.

Staff structure data involves a description of the organizational structure adopted by a project, and how staff members are distributed within that structure; project roster data involves a description of the roles played and/or functions performed by personnel within the project; an output index is an annotated listing of the outcomes of work effort that project staff identify as critical to the success of the project;

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[4] Each profile is identified as to its format number on the back of the profile title page.

and an output map is a schematic portrayal of the interdependencies between project outputs. More is said about output maps later in the GUIDE.

CHAPTER III: SUMMARY OF DATA. In terms of the data sets described previously, this chapter would be more accurately titled "Summary of Work Requirements for Output Production." Three data sets are summarized in the Chapter: (a) the standards held for the production of an output; (b) the tasks engaged in to produce an output to the standards set for it; and (c) the knowledges, skills, and sensitivities required to perform those tasks. Each of these data sets is displayed in standard tables as frequencies of category citations. The narrative text of the chapter deals principally with the data displayed in the tables, and the interrelationships of those data.

CHAPTER IV: SUPPLEMENTARY DATA. The chapter on supplementary data varies to some extent as to the specific data it contains. In general, however, the following data sets are reported:

(a) Kinds of outputs generated at varying stages of project completion;

(b) The distribution of outputs by their alternative classifications, i.e., structure, function, character, and level;

(c) Summaries of staff backgrounds;

(d) Individual job descriptions;

(e) Interviewee responses to questionnaire items relating to position requirements, support resources, and project management;

(f) Interviewee responses to questionnaire items citing emphases given to various classes of work activities;

(g) The funding base of the project.

Tables of the data are provided when they serve to provide a focus to the discussion. Meaningful relationships with data reported in other chapters are also pointed out.

CHAPTER V: PROJECT DYNAMICS. This chapter, by design, is the least structured of the profile chapters. The purpose of the chapter is to round out the profile by reporting "impressionistic" observations about the project. The "data base" for the Chapter was the hunches, observations, insights, etc. gained by the data collection team during their three to five day stay at the site of the project. These impressions are reported in whatever sequence, form, and substance the profile writer considered best in calling out the significant and unique features of project operation. The freedom of the dynamics chapter to vary in focus and content was considered essential to extending the meaning of the data collected. It was also seen as essential to methodological development, for it served as the vehicle by which new data thrusts were identified for inclusion in the methodology.

The substantive focus of the comments included in most project dynamics chapters includes some subset of observations with respect to staffing patterns, project management structures and procedures, management "styles," project related commitments, substantive issues that arise within projects, affective issues, and agency interrelationships. The discussion of such observations is linked, when appropriate, to "hard" data. The tenor of the discussion is intended to be non-judgmental and instructive.

CHAPTER VI: IMPLICATIONS FOR TRAINING. In this chapter the knowledge gained about a project is assessed with respect to its implications for training. In this assessment the data reported in the profiles generally are treated very briefly, for it is assumed that the reader can draw his own conclusions from his reading. Instead, attention is directed to comments or recommendations made about training by project personnel, or which are implied by the nature of the data collected. The discussion frequently focuses on training needs mentioned by project staff in relation to problems or difficulties in the project. To this extent, the discussion tends to highlight areas of competence in which preparation was weak.

PROFILE APPENDIX. The last chapter in each profile is followed by an appendix that contains the "raw" data that is the basis for the coded data reported in Chapter III. The raw data consists of the paraphrased or "recapped" statements of interviewees that describe the standards, tasks, and enablers associated with the generation of outputs. Category code numbers are included with each statement to facilitate their location in the various tables presented in Chapter III. The importance of this appendix extends beyond its function as an aid to the reader, for it represents what is presumed to be one of the most meaningful forms in which the data collected in the Oregon Studies can be presented for purposes of training. Furthermore, the profile appendix is the only place where the raw data on standards, tasks, and enablers appear.

Profile Format 2

Six profiles in the volume were prepared according to the format that preceeded in time the format just described. These are profiles 3, 4, and 8 in Part One of the volume; 12 and 13 in Part Two; and 19 in Part Three.

The main differences between formats 2 and 3 lie in the language used to describe project outputs. In format 2 the language of output structure, function, character, and level was not in use, and the distinction between products, events, and conditions had not as yet emerged. In their place was a language of production and management "products," where products served as a loosely defined term to cover what subsequently was recognized as products, events, and conditions.[5]

These differences are reflected in the content of Chapters II and III of the format 2 profiles. In all other respects both the content and organization of format 2 profiles are consistent with those reported in format 3.

Profile Format 1

Four profiles reported in the volume were prepared according to the first profile format developed. These are profiles 5 in Part One of the volume; 14 and 15 in Part Two; and 20 in Part Three. Since the variation between formats 1 and 3 is considerable, differences will be traced chapter by chapter.

CHAPTER I. Same as in format 3.

CHAPTER II. In place of an output index and an output map there is (a) an index of production responsibilities, (b) a production responsibility tree, (c) an index of management responsibilities, and (d) a management network. These correspond to the output index and output map of format 3, and for purposes of data analysis were so treated, i.e., they were recoded using the data sets reported in format 3 profiles. In format 1, production responsibilities are treated much as products are treated in format 3, and management responsibilities are treated much as events and conditions are treated in format 3. The distinction management and production responsibilities, however, are carried into Chapters III and IV of format 1, causing two chapters in the profile to be devoted to work requirement data (such data are consolidated in Chapter III in format 3). As is the case in format 2 profiles, the language of output index and map, and the language of output structure, function, character, and level does not exist.

CHAPTER III. Entitled DETAILS ON EACH PRODUCTION RESPONSIBILITY, this chapter presents the data on standards, tasks, and enablers only for products pertinent to the contractual obligations of the project. The chapter also contains the recapped interviewee statements (in format 3 profiles they appear as an Appendix), as well as the category frequency data that are based upon these statements.

CHAPTER IV. Entitled DETAILS ON EACH MANAGEMENT RESPONSIBILITY, the chapter simply repeats the format of Chapter III.

CHAPTER V. Equivalent to Chapter IV in format 3.

CHAPTER VI. Equivalent to Chapter V in format 3.

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[5] Subsequent to the preparation of format 2 profiles, production and management "products" were reclassified into products, events, and conditions. Two purposes were served by this reclassification: (a) it eased the strain of what had come to be recognized as a forced classification; and (b) it enabled the data reported in these profiles to be used in cross-project analyses. The recoded data are reported in supplementary tables that accompany each format 2 profile.

CHAPTER VII. Equivalent to Chapter VI in format 3.[6]

Notes on Reading Output Maps

The output map found in each of the profiles contains a wealth of information about the outputs of the project under investigation. In order to extract all the information that a map contains it is essential that the rules guiding the construction of a map be understood.

The Purpose of the Map

The purpose of the output map is to present as simply and as clearly as possible the interrelationships that exist between the various outputs of a project. The desired effect of reading an output map is a "picture" of the project being discussed in terms of the dependency relationships among the outputs the project seeks to achieve.

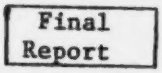
The Elements in a Map

Figure 4 contains an illustrative output map. A number of elements can be identified within it: solid line boxes; labels; code symbols; horizontal lines; vertical lines; brackets; dotted lines; dotted line boxes; and vertical (long and short dash) lines. Each of these elements contributes to the total information contained in a map. The following paragraphs identify the information presented by each element.

Solid line boxes

Each solid line box represents a specific output that the project is seeking to achieve. If the box stands alone (is not connected to any other box by a line) one of two conditions exists: (a) the output is considered to have value, but is not related to any other output, or (b) the output index did not contain output identifications that allowed other outputs to be linked to it.

Labels



Within each box there is a label which is the descriptor of the output represented. The labels found in the box are the same ones used to describe a particular output throughout the profile.

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[6] Profile 14 was a transition profile, and is peculiar in that it incorporates the language of the profile 1 format but the organization of profile 2 and 3 formats.

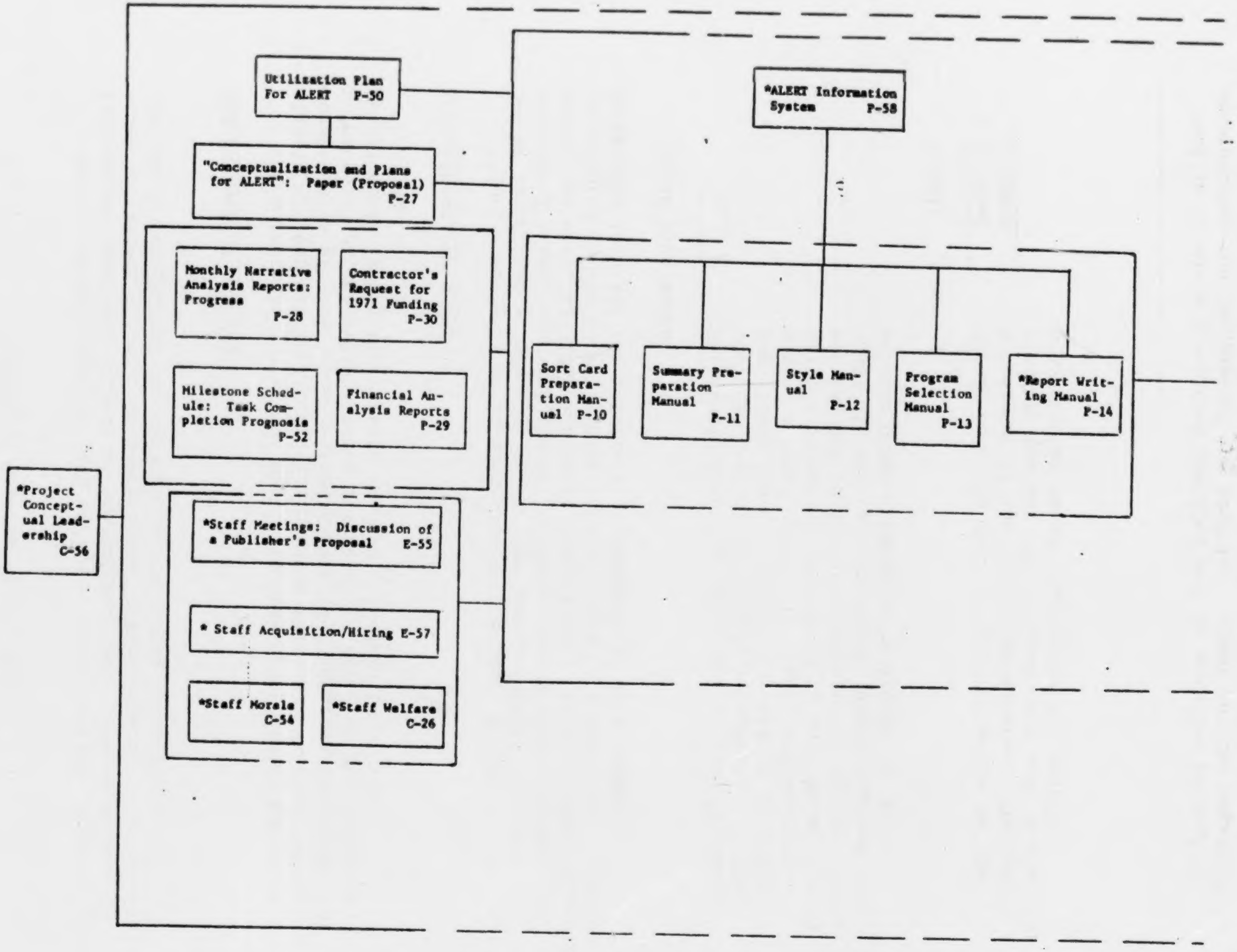
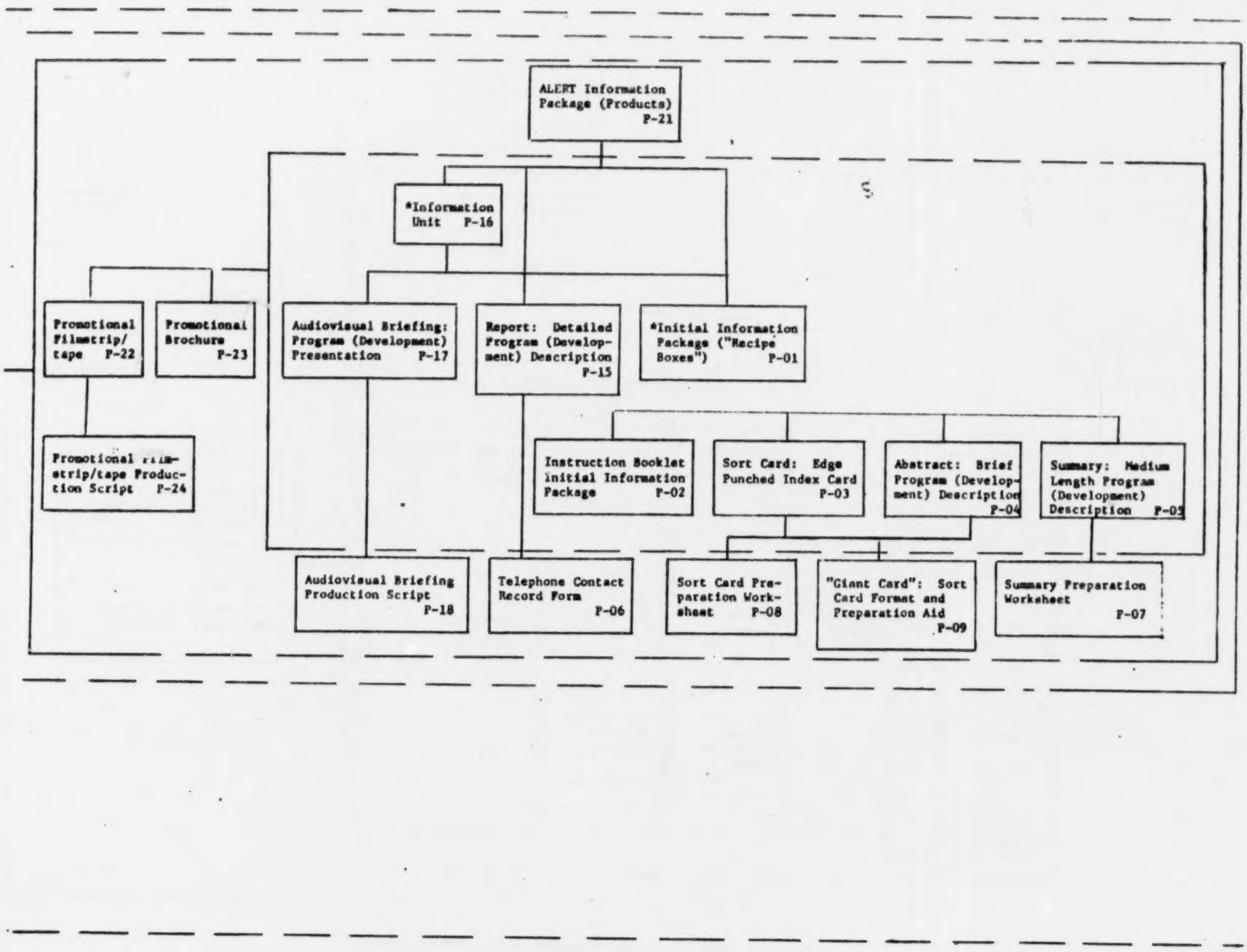

*Project Conceptual Leadership C-56
Utilization Plan For ALERT P-50
"Conceptualization and Plans for ALERT": Paper (Proposal) P-27
Monthly Narrative Analysis Reports: Progress P-28
Contractor's Request for 1971 Funding P-30
Milestone Schedule: Task Completion Prognosis P-52
Financial Analysis Reports P-29
*Staff Meetings: Discussion of a Publisher's Proposal E-55
* Staff Acquisition/Hiring E-57
*Staff Morale C-54
*Staff Welfare C-26
*ALERT Information System P-58
Sort Card Preparation Manual P-10
Summary Preparation Manual P-11
Style Manual P-12
Program Selection Manual P-13
*Report Writing Manual P-14

FIG. 4. An illustrative output map (overall project management and technology development).


ALERT Information Package (Products) P-21
*Information Unit P-16
Promotional Filmstrip/tape P-22
Promotional Brochure P-23
Audiovisual Briefing: Program (Development) Presentation P-17
Report: Detailed Program (Development) Description P-15
*Initial Information Package ("Recipe Boxes") P-01
Promotional Film-strip/tape Production Script P-24
Instruction Booklet Initial Information Package P-02
Sort Card: Edge Punched Index Card P-03
Abstract: Brief Program (Development) Description P-04
Summary: Medium Length Program (Development) Description P-05
Audiovisual Briefing Production Script P-18
Telephone Contact Record Form P-06
Sort Card Preparation Worksheet P-08
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Summary Preparation Worksheet P-07

FIG. 4. Continued (information products development).

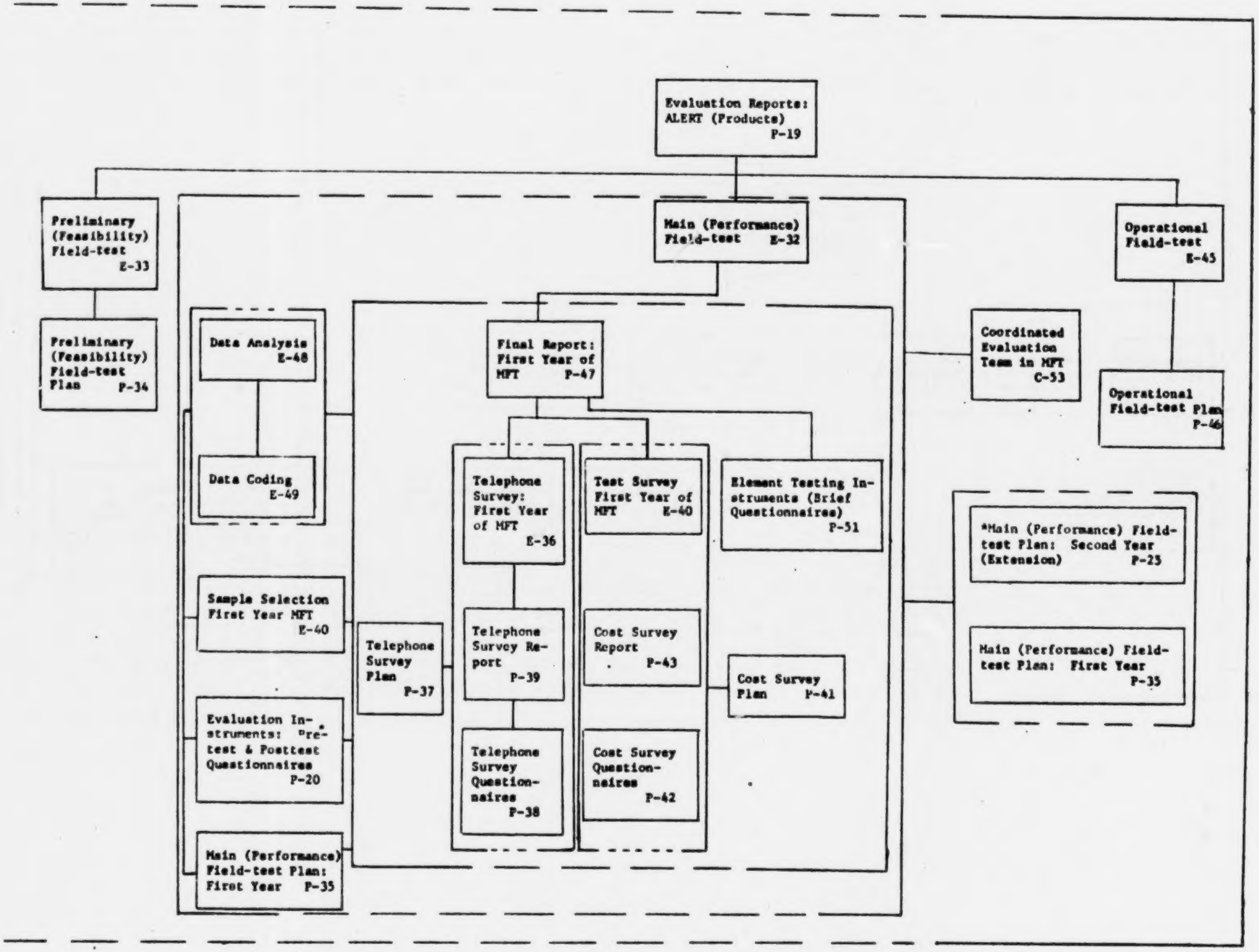
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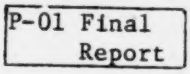
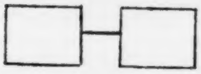
FIG. 4. Concluded (field-test evaluation of information products)

Coded symbol



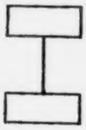
Each box contains, along with the label, a coded symbol. Each symbol is composed of a letter which identifies the structure of the output (P-product, E-event, C-condition), and a 2-digit numeral which identifies the output sequentially with respect to the other outputs in the same profile. Code numbers are the same throughout the profile.

Horizontal lines



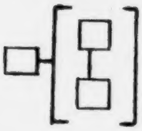
Horizontal lines between boxes indicate that the outputs so connected have side-effect relationships, that is, the production of one influences the other, and vice versa.

Vertical lines



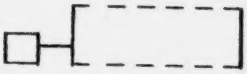
Vertical lines between boxes indicate that the upper output is dependent on the lower. Until the lower output is completed the upper one cannot be completed. In the total map, boxes connected by vertical lines are hierarchically arranged, those at the top of the map being dependent upon all those below.

Brackets



Boxes enclosed by brackets represent outputs which are influenced by, but not dependent on the output represented by the box linked horizontally to the bracket(s).

Dotted lines



Dotted lines connecting two brackets are used to indicate outputs that are influenced by another output when the outputs encompassed by a bracket area are large in number, or when influence is carried across more than one page of the map.

Dotted line boxes

Dotted line boxes represent those outputs which are either generated outside the project, but influence it, or are outputs generated by the project as a function of other outputs but have not been indexed by project staff.

Vertical (long and short dash) lines

When more than one page is needed to display an output map, vertical lines (long and short dash) are used on the right of the first page and the left of the second page to indicate the point at which the two pages coincide.

Under unusual circumstances some outputs may appear more than once in a map. This results when they are related to other outputs in different ways, i.e., dependent on one set but influenced by another. When it is impossible to display both the relationships by one placement, outputs are repeated.

Once the purpose of an output map is understood and the various elements within it are defined, the reader should be able to extract a great deal of information from a careful analysis of a map. It should be made clear, however, that an output map does *not* attempt to display time relationships as do other process charts such as PERT. An output map focuses on the *dependency* relationships existing between outputs, independent of the factor of time.

GLOSSARY OF COMMON PROFILE TERMS

This glossary contains definitions of terms used frequently in the profiles. Asterisks identify terms that were used in the early forms of the profiles. These terms, no longer in use, are identified with a single asterisk to indicate their appearance in profile format 1 and a double asterisk to indicate their appearance in profile format 2. When terms are used in a definition that are themselves defined in the glossary, they appear in capital letters.

ADOPTION. A circumstance in which KNOWLEDGE, INFORMATION, and/or TECHNOLOGY is utilized.

CHARACTER OF OUTPUT. See Output Character.

COMPONENT OUTPUT. An outcome of work effort that constitutes an element of, or an approximation to, a FOCAL OUTPUT.

CONDITION. An outcome of work effort that creates a desired circumstance expected to endure over the life of a project, or as a result of it.

CONTEXT. See Project Context.

DEVELOPMENT. A problem-solving strategy designed to produce reliable technology, that is, procedures, materials, hardware, and organizational frameworks that have a known degree of success in bringing about a particular outcome or in performing a defined operation; also used to designate the focus of projects (see Project Focus) and the focus of outputs (see Output Focus).

DIFFUSION. A problem-solving strategy designed to bring about the implementation of generalizable knowledge, a reliable technology, or trustworthy information (as used here diffusion incorporates both the concepts of DISSEMINATION and ADOPTION); also used to designate the focus of projects (see Project Focus) and the focus of outputs (see Output Focus).

DISSEMINATION. A circumstance in which KNOWLEDGE, INFORMATION, and/or TECHNOLOGY is distributed to a targeted population.

EDUCATIONAL RDD&E. A coordinated set of problem-solving strategies designed to produce outputs that can be judged as to their quality and their contribution to the solution of educational problems.

ENABLER. KNOWLEDGES, SKILLS, and SENSITIVITIES needed to produce a particular output.

ENVIRONMENTAL MANAGEMENT RESPONSIBILITY.* Responsibilities which, when carried out, result in outcomes that enhance or facilitate the environment in which a project operates. (Subsequently, only the outputs of these responsibilities were analyzed.)

EVALUATION. A problem-solving strategy designed to produce trustworthy information regarding a phenomenon which occurs in a context or environment over which the user expects to exercise influence or about which he expects to make decisions; also used to designate the focus of projects (see Project Focus) and the focus of outputs (see Output Focus).

EVENT. An outcome of work effort that results in the occurrence of an observable transaction or set of behaviors.

FACILITATING OUTPUT. An outcome of work effort that supports the generation of FOCAL or COMPONENT OUTPUTS, but is not in itself a part of such outputs.

FOCAL OUTPUT. An outcome of work effort expected by contractual obligation to emerge from a project.

FOCUS. See Project Focus and Output Focus.

FUNCTION. See Output Function.

IMPLEMENTATION. A classification given an output of DIFFUSION, i.e., an instance of the ADOPTION and UTILIZATION of KNOWLEDGE, INFORMATION, and/or TECHNOLOGY; the objective of DIFFUSION.

INFORMATION. A classification given an output of EVALUATION, i.e., an instance of reliable information about a given phenomenon within a context over which a user expects to exercise influence or about which he expects to make decisions; the objective of EVALUATION.

KNOWLEDGE (AS ENABLER). A classification given an ENABLER that identifies it as a fact, principle, or generalization, and that can stand the test of empirical verification; also, any circumstance that can be shown to exist.

KNOWLEDGE (AS OUTPUT). A classification given an output of RESEARCH, i.e., an instance of established fact, principle, etc. that is generalizable and that can stand the test of empirical verification; the objective of RESEARCH.

LEVEL OF OUTPUT. See Output Level.

MANAGEMENT FUNCTION. A classification given an output that orchestrates the resources (time, personnel, materials, space, information) available to a project for the realization of the outcomes expected from it; also a report of that orchestration.

MANAGEMENT NETWORK (also MANAGEMENT RESPONSIBILITIES NETWORK).* A hierarchical ordering that graphically illustrates the functional relationships between MANAGEMENT PRODUCTS and RESPONSIBILITIES within a project. (Subsequently incorporated within output maps.)

MANAGEMENT PRODUCT.** A classification given a product serving a MANAGEMENT RESPONSIBILITY. (Subsequently identified as a product serving a MANAGEMENT FUNCTION.)

MANAGEMENT RESPONSIBILITY.* See Environmental Management Responsibility and Production Management Responsibility.

MANAGEMENT RESPONSIBILITY INDEX.* A listing of the MANAGEMENT RESPONSIBILITIES within a project. (Subsequently incorporated within the OUTPUT INDEX.)

OUTPUT. An identifiable outcome of targeted work activity that contributes to the realization of project goals.

OUTPUT CHARACTER. The attributes of an output that mark it as an instance of KNOWLEDGE, TECHNOLOGY, IMPLEMENTATION, or INFORMATION.

OUTPUT FOCUS. The attributes of a FOCAL OUTPUT that mark it as an output of RESEARCH, DEVELOPMENT, DIFFUSION, or EVALUATION. (In Format 1 and 2 profiles, all outputs are classified in terms of an RDD or E focus.)

OUTPUT FUNCTION. The attributes of an output that mark it as serving a POLICY, MANAGEMENT, or PRODUCTION FUNCTION.

OUTPUT INDEX. An annotated listing of the outputs of a project.

OUTPUT LEVEL. The attributes of an output that identify its relationship to project goals as FOCAL, COMPONENT, or FACILITATING.

OUTPUT MAP. A graphic portrayal of the functional interdependencies among the outputs of a project.

OUTPUT STANDARD. A criterion applied to, or level of excellence expected of, an output; a criterion by which the adequacy of an output is judged.

POLICY FUNCTION. A classification given an output that establishes standards or guidelines for a project.

PROCESS/OPERATIONS STANDARDS. A criterion applied to, or level of excellence expected of, the processes/operations engaged in in producing an output; a criterion by which the adequacy of processes/operations are judged.

PRODUCT. A tangible or "hard" outcome of work effort, concrete in form, and transportable at a given point in time.

PRODUCTION FUNCTION. A classification given an output that is a part of the total fabrication effort of a project.

PRODUCTION MANAGEMENT RESPONSIBILITY.* Responsibilities which, when carried out, result in outcomes that enhance or facilitate the generation of products for which the project is responsible. (Subsequently, only the outputs of these responsibilities were analyzed.)

PRODUCT TREE or PRODUCTION RESPONSIBILITY TREE.* A graphic portrayal of the functional interdependencies among the products of a project (equivalent to an OUTPUT MAP, except it contains only PRODUCTS).

PROJECT. A formally recognized, funded and directed effort aimed at achieving one or more specified ends that have their definition in educational RESEARCH, DEVELOPMENT, DIFFUSION, and EVALUATION.

PROJECT COMPLEXITY. A project dimension defined in terms of level of funding and duration.

PROJECT CONTEXT. A project dimension defined in terms of institutional setting, e.g., schools, colleges and universities, publicly supported laboratories and R&D centers.

PROJECT FOCUS. A project dimension defined in terms of primary emphasis of work effort, i.e., RESEARCH, DEVELOPMENT, DIFFUSION, and EVALUATION.

RESEARCH. A problem-solving strategy designed to produce reliable KNOWLEDGE, that is, facts, principles, theories, and laws that are generalizable and that can stand the test of empirical verification; also used to designate the focus of projects (see Project Focus) and the focus of outputs (see Output Focus).

SENSITIVITY. A classification given an ENABLER that identifies it as an increment of awareness about an environment or factors operating in or upon an environment; also, attitudes and personality characteristics.

SKILL. A classification given an ENABLER that identifies it as an ability, proficiency or expertness in the exercise of an art, craft, or science.

STANDARD. See Output Standard and Process/Operations Standard.

STRUCTURE OF ENABLERS. A classification given ENABLERS that identifies them as KNOWLEDGES, SKILLS, or SENSITIVITIES.

STRUCTURE OF OUTPUTS. A classification given OUTPUTS that identifies them as PRODUCTS, EVENTS, or CONDITIONS.

STRUCTURE OF STANDARDS. A classification given STANDARDS that identifies them as OUTPUT STANDARDS or PROCESS/OPERATIONS STANDARDS.

TASK. A unit of work performed in producing a specified OUTPUT to a specified STANDARD.

TECHNOLOGY. A classification given an output of DEVELOPMENT, i.e., an instance of a plan, procedure or product that when applied can bring about a desired end with a known degree of reliability; the objective of DEVELOPMENT.

TREE. See Product Tree.

UTILIZATION. A circumstance in which KNOWLEDGE, INFORMATION, and/or TECHNOLOGY is employed in accomplishing a goal or end state.

CASE PROFILE NO. 1

Written by
Herbert E. Hill

PROJECT TITLE: Improving Organizational Processes in Unitized Elementary Schools

("UNITIZED" Project)

AN EDUCATIONAL RESEARCH PROJECT CONCERNED WITH: Testing various approaches to training, including laboratory training for organizational development, to help elementary schools convert from a traditional organizational form to a unitized pattern that incorporates differentiated staffing.

A PROJECT OF:

Center for Advanced Study of
Educational Administration
University of Oregon
Eugene, Oregon 97401

This profile has been prepared according to

PROFILE FORMAT No. 3

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

This chapter is a brief introduction to the project "Improving Organizational Processes in Unitized Elementary Schools" ("Unitized") conducted at the Center for Advanced Study of Educational Administration (CASEA), University of Oregon.

Synopsis of the Project

Title: Improving Organizational Processes in Unitized Elementary Schools.

Responsible Institution: University of Oregon, Center for Advanced Study of Educational Administration.

Funding Sources:
1. U.S. Office of Education, National Center for Educational Research and Development.
2. University of Oregon, Graduate School.

Funding Duration: July 1970 to June 1971.[1] (12 months)

Observation Date: February 1971.

Present Stage of Development: Mid-Project

RDD&E Focus of Project: Educational research.

Project Target Group: Faculty of elementary schools.

Expected Outcomes:
1. Final project report on "outcomes of four different methods of preparing for differentiated staffing in 10 elementary schools."
2. A handbook containing descriptions of methods and outcomes from project reported herein, as well as one other project in CASEA and several outside CASEA.
3. Two doctoral dissertations.
4. One or more professional journal articals.

Level of Funding and Duration: Low-Medium. (level 2 of 7 levels)

Agency Setting: Research and development center.

Staff Summary (current):	Professional	Support
Total Full Time Equivalency in man years (interviewees only):	1.55	
Number of Personnel Assigned:	12	5

Professional Specialities of Staff (interviewees only): social psychology (2) and guidance/counseling (2).

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[1] This timeline constitutes an approximation only as projects in the agency are not funded on a time basis, but rather on the basis of need. (See Chapter V for further explanation.)

Objectives, Rationale, and Significance of the Project

One of the ongoing activities at the Center for Advanced Study of Educational Administration (CASEA) is Program 30. This program is concerned with developing a training approach for helping schools change organizationally. Referred to as "Organizational Development," this approach involves training the entire faculty of a school in communication skills, developing group processes in problem solving and decision making, and diagnosing difficulties that a group may be having in communication. The process of this diagnosis and training is called "intervention."

The "Unitized" Project, within Program 30, is an attempt to apply this general training strategy to a specific kind of school organization. This organization is referred to by the various labels of "multiunit school," "open school," "team teaching school," or "differentiated staffing school." Basically, this is a school in which teams of teachers are responsible for teaching and/or decision making about large groups of students.

Some of the advantages claimed for the unitized staff are faster adaptation of curriculum and instructional innovation, more flexibility in grouping and in using teachers with different skills, and greater variety of teachers and resources available to the student.

It may be difficult to introduce this kind of organization into a school whose staff have developed few appropriate expectations or skills for team work or group problem solving and decision making. Therefore, this training strategy is designed to help in this transition.

The "Unitized" Project is specifically directed at determining the smallest portion of a faculty that can be trained in organizational development, to effectively enable a school to change to utilization.

The design for this project, as outlined in the proposal, "will test directly and systematically the efficacy of four methods of intervention: (a) organizational training with the entire staff, (b) group-development training with the principal and the unit leaders, (c) leadership training for the principals (only), and (d) no intervention at all."

The primary output of the project, as identified in the proposal, will be "a report on outcomes of four different methods of preparing for differentiated staffing in 10 elementary schools" that will be titled Organizational Development in Elementary Schools.

Context in Which the Project Operates

Relationship to other agencies. The University of Oregon, its Graduate School, the Institute for Community Studies, and CASEA provide various organizational services and sanctions, as well as fiscal accountability to the project. Figure 1 represents the organizational context in which it functions.

Funding in CASEA is for an entire program rather than by individual projects. An annual contractor's request is prepared that summarizes the progress and proposals for all of the program rather than by separate projects. This goes to the U.S. Office of Education (USOE) from whom most of the financial support for the work carried out in CASEA is obtained.

Another program in CASEA is Program 20. Titled "Organizational Implications of Instructional Change," it is especially concerned with instructional innovations such as differentiated staffing. It is expected that Program 20 will collaborate with the "Unitized" Project in the collection of data in some of the participating schools. This has a mutual benefit for both programs, providing extra manpower for this project and needed data in Program 20.

This project has an informal relationship with the National Training Laboratories (NTL). Data will be collected in local schools which are attempting to change to unitized staffing, and where only the principal has taken training at NTL. There are no formal agreements between NTL and this project.

At the time of observation there were six participating elementary schools in the project's training program; two in the organizational development intervention method and four in the group development intervention method. Eight to as many as 20 more schools were expected to become involved in the project before its planned conclusion in April 1973.

Time lines. Figure 2 is the schedule for the "Unitized" Project as it appeared in the proposal. The first phase of training was an intensive one week workshop held in late August 1970 preparatory to the start of school. The second phase of training was held in the schools during school time and can be viewed as implementation of unitized staffing and change strategies.

Physical/environmental setting. This project is being conducted solely within and from the offices of CASEA on the University of Oregon campus. All of the participating test schools are located in the local community. Proximity of the test schools reduced staff travel time to a minimum, and the university campus location offers research, library, and computer facilities.

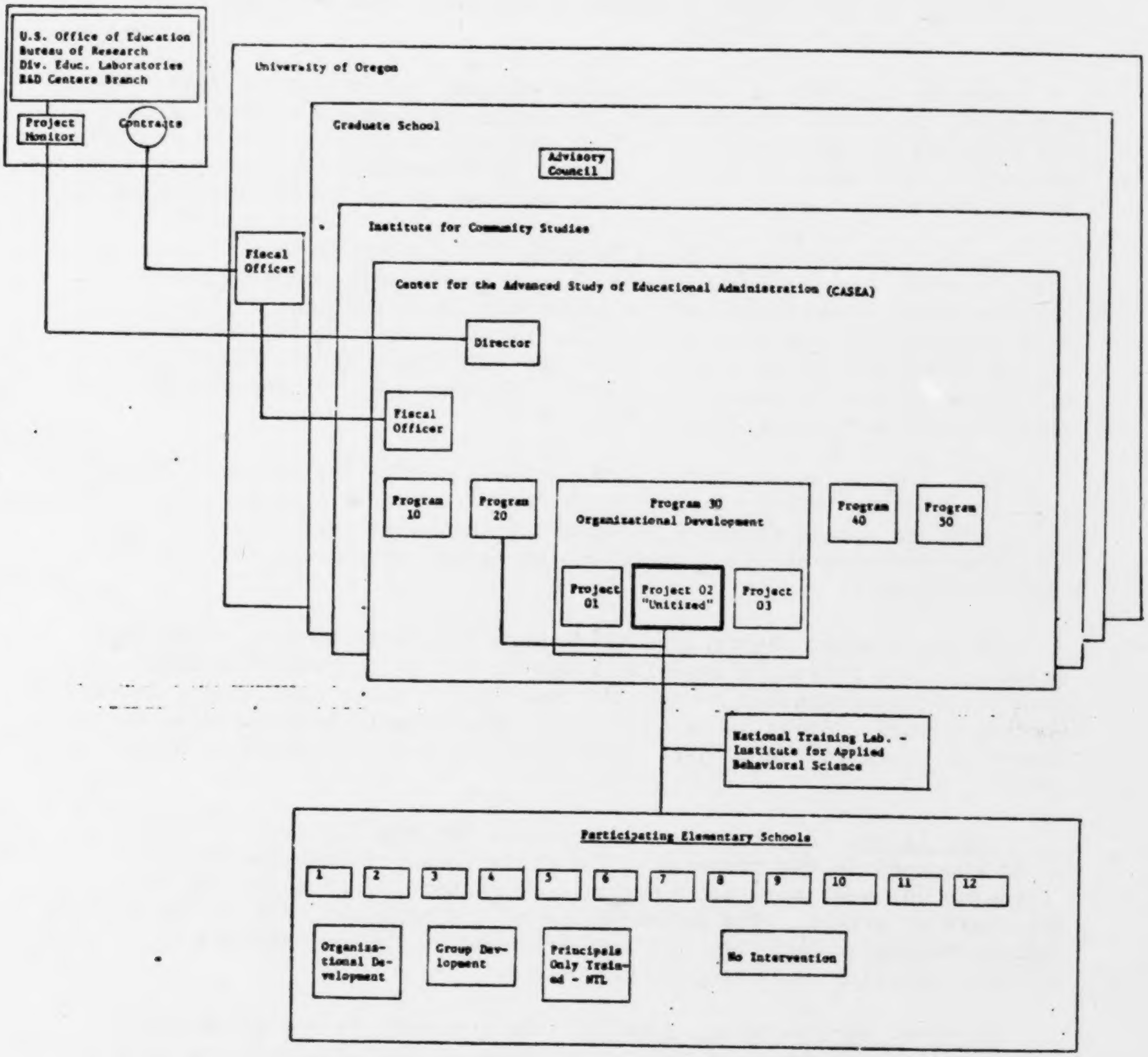
U.S. Office of Education
Bureau of Research
Div. Educ. Laboratories
R&D Centers Branch
Project Monitor
Contracts
University of Oregon
Graduate School
Advisory Council
Institute for Community Studies
Fiscal Officer
Center for the Advanced Study of Educational Administration (CASEA)
Director
Fiscal Officer
Program 10
Program 20
Program 30
Organizational Development
Program 40
Program 50
Project 01
Project 02 "Unitized"
Project 03
National Training Lab. - Institute for Applied Behavioral Science
Participating Elementary Schools
1
2
3
4
5
6
7
8
9
10
11
12
Organizational Development
Group Development
Principals Only Trained - NTL
No Intervention

FIG. 1. Contextual map.

4

Current Funding Period

	1969	1970				1971				1972				1973	
	Fall	Wint	Sprg	Sumr	Fall	Wint	Sprg	Sumr	Fall	Wint	Sprg	Sumr	Fall	Wint	Sprg
Planning	XXXX	XXXX	XXXX												
Negotiating with schools.	XXXX	XXXX	XXXX	XXXX											
First phase of training.				XX											
Second phase of training.					X X	X X									
Mail questionnaires to school where principal only is trained.											X				
Collect pretest and post-test data.			XX				XX				XX				
Analyze data.								XXXX	XXXX	XXXX	XXXX	XXXX			
Write reports										XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

FIG. 2. Time lines.

Chapter II: Parameters of the Project

This chapter presents the staffing pattern of the project and describes briefly these outputs which were interviewed around. It also displays those interdependent relationships of all identified project outputs in an output map.

Project Structure

Staff structure. Figure 3 represents the organizational structure of the "Unitized" Project. The project has a dual leadership. The Director and Co-Director share the leadership and management responsibilities for the project. To a lesser extent, the Research Associate, also a full time faculty member, shares in the activities at this level. The nine graduate assistants provide manpower for the project and participate in production management. The purposes of the project serve its own interests, as well as providing a supervised setting for the training of educational R & D personnel. Further staffing of this project included the support of two secretaries, two coders, and a librarian.

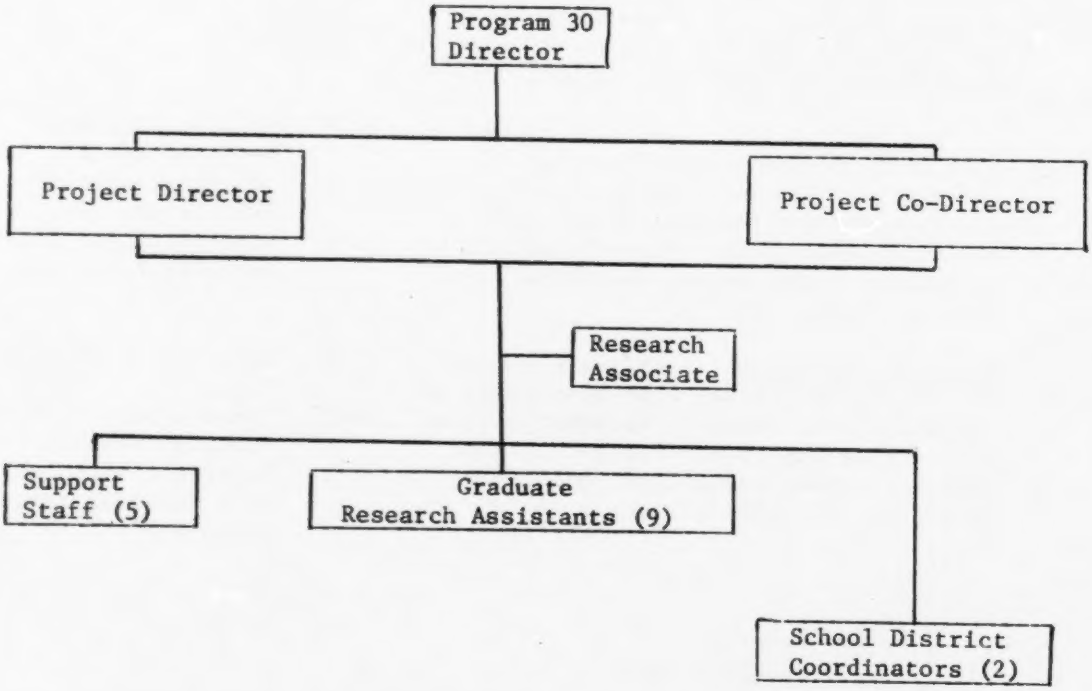
Program 30 Director
Project Director
Project Co-Director
Research Associate
Support Staff (5)
Graduate Research Assistants (9)
School District Coordinators (2)

FIG. 3. Project organizational structure.

Two school district coordinators work some 20% of their time with this project. They are considered adjunct members of the staff, receiving no salary from the project. Their primary function is to serve as liaison with the educational R & D community as representatives of the schools' interests.

On this project, it is estimated that an attrition rate for staff during '70, '71, and '72 will be between 16% and 30%. The planned total duration of more than three years for the overall project would tend to assure a significant turnover among the research assistants (graduate students), but not for the senior staff.

None of the people working on this project are assigned full time. All have responsibilities to other projects in Program 30 or to projects in other programs of CASEA. The Project Co-Director for the "Unitized" Project is also Director of Program 30 in which the project resides.

Project roster. The following staff members were interviewed for information about the project and its selected outputs.

Staff Interviewed	Outputs Interviewed
Project Director: A social psychologist with experience in organizational change. Responsible for conception and initiation of this project while sharing with a colleague the responsibilities of managing and production within the project. FTE[2] .40	E-01.[3] Laboratory Training Program (Field test of intervention methods)
Project Co-Director: A social psychologist with an experimentally oriented background. Shares responsibility with the Director for management and production within project. Gives considerable attention to the budget, personnel, and data analysis. FTE .40	E-08. Project Progress: Maintaining of E-09. Project Budget: Maintaining of E-10. Staff Hiring: Graduate Research Assistants
Research Assistant: A graduate student at the doctoral level with speciality in counseling psychology. Responsibilities lie in training of the field-test site personnel, data collection, and generally supporting the work of the project. FTE .50	P-02. Interaction Observation Form P-03. Inhouse Memos: Test Schools Training Visit Reports. C-04. Test Schools' Personnel Welfare

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[2] FTE (Full Time Equivalency)

[3] See "Index of outputs" for description of output identification number.

Research Assistant: A graduate student at the doctoral level with specialization in counseling psychology. Responsibilities in training of field-test site personnel, coordination of observation teams, data collection, and generally supporting the work of the project wherever skills most useful. FTE .25	E-05. Training Sessions: Group Development Intervention Method E-06. Observations Coordinating: Test Schools' Faculty Interaction P-07. Summary Reports: Inhouse Progress Reviews

The following staff members complete the list of project personnel. These people were not interviewed in this study.

Research Associate (senior project staff): Had recently joined the project staff at the time of observation. Primarily responsible for project output utilization plans.

Research Assistants: In addition to the two research assistants interviewed, there were seven other graduate students on the project staff, all carrying responsibilities very similar to those mentioned above for the research assistants who were interviewed.

Outputs Generated

During the observation and interview period on the "Unitized" Project, 40 significant outputs[4] were identified and formal interviews were conducted around 10 of them. Those project personnel who were linked to these 10 selected outputs were interviewed about their roles in generating them. The selected outputs are annotated and summarized in the following section.

Index of outputs. An arbitrary identification number has been given to each of the 40 outputs and is composed of two parts: (a) a letter which permits easy identification of the output as either a product (P), condition (C), or event (E)[5], and (b) a sequence number for all outputs irrespective of P, C, or E.

---

[4] An identifiable and significant planned outcome (product, event, condition) of targeted work activities, with targeted work activities being actions directed toward the realization of projected goal states.

[5] Product - A tangible or "hard" outcome of work effort that survives in a form that is transportable, such as a report.

Event - An outcome of work effort that results in the occurrence of an observable transaction, such as an interview.

Condition - An outcome of work effort that results in the creation of a desired circumstance, such as fiscal responsibility.

9

E-01. Laboratory Training Program (Field Test of Intervention Method). Field test in selected elementary school faculties of the Organizational Development and the Group Development intervention methods.

P-02. Interaction Observation Form: Evaluative. Interaction classification tally form used by observers of group process, i.e., meetings, etc. in the field-test schools.

P-03. Inhouse Memos: Test Schools Training Visits Reports. Reports prepared by training team leaders which note the processes and progress in the field-test schools toward unitization.

C-04. Test Schools' Personnel (Trainees) Welfare. Support and guidance provided to the school faculty members during the implementation of organizational development strategies.

E-05. Training Sessions: Group Development Intervention Method. Training sessions with the Principal and unit leaders of a school that included organizational diagnosis and feedback, intergroup and interrole confrontations, and increase of group problem-solving skills. Special emphasis given to team building and communication skills training.

E-06. Observations Coordinating: Test Schools' Faculty Interaction. Maintaining and managing people to efficiently collect group behavior data in the test site schools.

P-07. Summary Reports: Inhouse Progress Reviews. Inhouse memo summarizing the major events, themes, and assessment of progress for a specified period.

E-08. Project Progress: Maintaining it. The assurance and monitoring of work flow.

E-09. Project Budget: Maintaining it. Monitoring of expenditures against project progress and requirements.

E-10. Staff Hiring: Graduate Research Assistants. Approximately two or three graduate assistants are hired each year.

Output map. Figure 4 graphically represents the dependency relationships of the 40 identified outputs of this project.

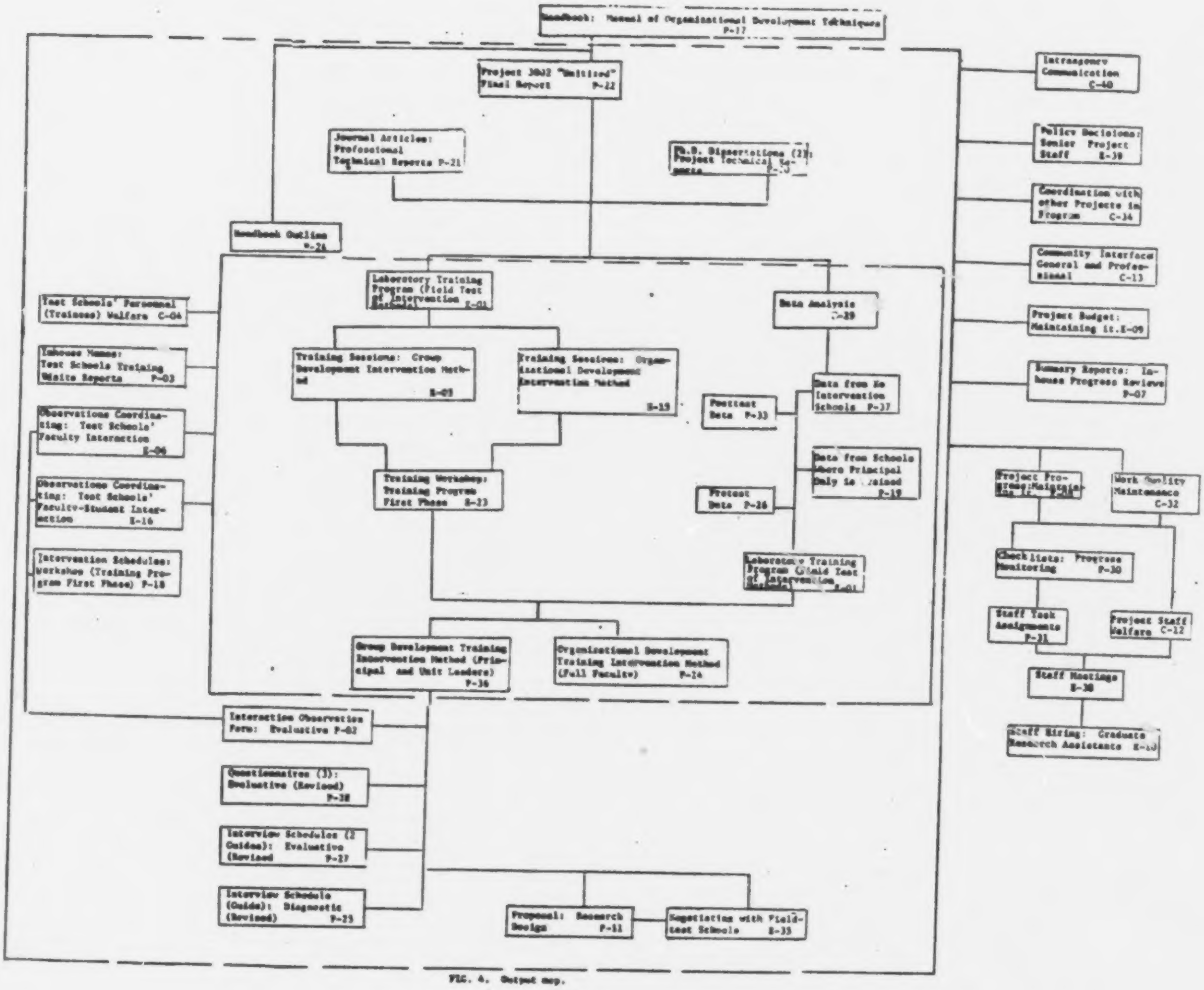
Handbook: Manual of Organizational Development Techniques P-17
Project 3032 "Untitled" Final Report P-22
Journal Articles: Professional Technical Reports P-21
Ph.D. Dissertations (2): Project Technical Reports P-20
Handbook Outline P-24
Laboratory Training Program (Field Test of Intervention Methods) E-01
Data Analysis C-29
Test Schools' Personnel (Trainees) Welfare C-04
Inhouse Memos: Test Schools Training Visits Reports P-03
Training Sessions: Group Development Intervention Method E-05
Training Sessions: Organizational Development Intervention Method E-13
Posttest Data P-33
Data from No Intervention Schools P-37
Observations Coordinating: Test Schools' Faculty Interaction E-06
Observations Coordinating: Test Schools' Faculty-Student Interaction E-16
Training Workshop: Training Program First Phase E-23
Pretest Data P-26
Data from Schools Where Principal Only is Trained P-19
Intervention Schedules: Workshop (Training Program First Phase) P-18
Laboratory Training Program (Field Test of Intervention Methods) E-01
Group Development Training Intervention Method (Principal and Unit Leaders) P-36
Organizational Development Training Intervention Method (Full Faculty) P-14
Interaction Observation Form: Evaluative P-02
Questionnaires (3): Evaluative (Revised) P-28
Interview Schedules (2 Guides): Evaluative (Revised P-27
Interview Schedule (Guide): Diagnostic (Revised) P-25
Proposal: Research Design P-11
Negotiating with Field-test Schools E-35
Intraagency Communication C-40
Policy Decisions: Senior Project Staff E-39
Coordination with other Projects in Program C-34
Community Interface General and Professional C-13
Project Budget: Maintaining it. E-09
Summary Reports: In-house Progress Reviews P-07
Project Programs: Maintaining it.
Work Quality Maintenance C-32
Checklists: Progress Monitoring P-30
Staff Task Assignments P-31
Project Staff Welfare C-12
Staff Meetings E-38
Staff Hiring: Graduate Research Assistants E-10

FIG. 4. Output map.

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Chapter III: Summary of the Data

Data were gathered through interviews around the selected outputs described in Chapter II. The interviews sought to elicit for each output to be analyzed the standards by which the satisfactory completion of the output is judged, the tasks required to generate an output meeting those standards, and the enablers (knowledges, skills, and sensitivities) which facilitate the carrying out of those tasks. The tables included in this chapter summarize the output data of these three categories by showing the frequency with which an item of interview information was cited within each one.

Within each category are a series or set of descriptive labels which are representative of interviewee statements (raw data) within a particular category. These descriptive labels are listed in the table under the category heading. In the process of reducing raw data, narrative interviewee statements about an output were linked to one of the three major categories. Each narrative statement was then classified by means of a number code according to the most representative descriptive label within a given category or subcategory.

Each table, therefore, provides the frequency with which interviewees cited specific statements (which are represented by the descriptive labels in the tables) of standards (Tables 1 and 2), tasks (Table 3) and enablers (Tables 4, 5, 6) in relation to the outputs that are listed.[6]

Output Analysis

Standards held for outputs. Tables 1 and 2 summarize the standards for outputs that the interviewees cited. Table 1 is the output standards (coding set J-1) and Table 2 is the process standards (coding set J-2). In Table 1, about one-half of the output standards cited cluster under the category "Goal attainment" for the output "Laboratory Training Program." The remainder of the standards are scattered. Output P-02, "Interaction Observation Form: Evaluative," had standards cited in five categories. The project was very much involved in the training program and data collection at the time of observation and this is reflected in the table. Table 2, the process standards cited by the interviewees are

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[6] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is only represented in the table by the descriptive label and its number coding.

TABLE 1

Output Standards Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Standards for Outputs (Category code no. and label for coding set J-1) 01 Completeness of content	04 Communication and clarity	05 Utility or value	07 Personal satisfaction/feeling	12 Goal attainment	13 Acceptance by others (in proj)	16 Compares favorably	21 Sources of variance controlled	22 Functions as planned	Output Totals
E-01	Laboratory Training Program (Field Test of Intervention Method)		2			13					15
P-02	Interaction Observation Form: Evaluative			1	1			1	1	1	5
P-03	Inhouse Memos: Test Schools Training Visits Reports		1				1				2
C-04	Test Schools' Personnel (Trainees) Welfare				1						1
E-05	Training Sessions: Group Development Intervention Method					1					1
E-06	Observations Coordinating: Test Schhols' Faculty Interaction								1		1
P-07	Summary Reports: Inhouse Progress Reviews	2					1				3
Category Totals		2	3	1	2	14	2	1	2	1	28

TABLE 2

Process Standards Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Standards for Processes (Category code no. and label for coding set J-2) 07 An expected activity occurs	10 Maximum possible participation	11 Costs consistent w/estimates	26 Values and objectives match	30 Personnel loss not excessive	34 Impact of effort favorable	38 Equity in opportunity to input	Output Totals
E-01	Laboratory Training Program (Field Test of Intervention Method					1	2		3
E-05	Training Sessions: Group Development Intervention Method		1		2			1	4
E-06	Observations Coordinating: Test Schools' Faculty Interaction	1							1
E-08	Project Progress: Maintaining it	1							1
E-09	Project Budget: Maintaining it			1					1
Category Totals		2	1	1	2	1	2	1	10

scattered and only Category 07, "An expected activity occurs," is cited in more than one output. Output E-05, "Training Sessions: Group Development Intervention Method," has standards cited in more than two categories.

Tasks pertaining to output attainment. Table 3 summarizes the tasks cited by interviewees as relevant for the attainment of related outputs. More than one-third of all tasks cited are in Output E-01, "Laboratory Training Program," while the task categories with the highest frequencies are numbers 31, "Diffusing within project;" 22, "Effecting accountability;" and 05, "Collecting/processing data." This reflects the field setting nature of this research project.

Enablers pertaining to output attainment. Table 4 summarizes the knowledges cited by interviewees that enable them to develop particular outputs. Categories 03, "Subjects related to RDD&E," and 04, "Technical/professional topics," were the only categories included in more than one output.

In Table 5, the enabling skills indicated by the interviewees as important to their work on an output are mostly related to instrument design, data collection, administering instruments, and analysis.

Table 6 summarizes the sensitivities the interviewees cited as enabling them to conduct their output activities effectively. Again, as is common in the other tables, most of the sensitivities are cited for Output E-01, "Laboratory Training Programs." The reader should be aware that all of the data collected around this output comes from an interview with one person. It is assumed that his high degree of involvement in this project accounts for the great amount of information given that occurs under this output. But in looking at the table, the category most often cited is 22, "Responses of target audiences." This would seem to reflect the people-oriented, group processes emphasis which appears to characterize this project.

TABLE 3

Tasks Cited for Each Output Analyzed

Project Outputs		Clusters of Tasks (Cluster code no. and label for coding set NO)														
No.	Label	01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	21 Procuring professional staff	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	29 Facilitating relationships	30 Effecting info flow patterns	31 Diffusing info within project	33 Effecting decision mechanisms	Output Totals
E-01	Laboratory Training Program (Field Test of Intervention Method)		1		1	10	1		3	2	2	8	1	7	1	37
P-02	Interacting Observation Form: Evaluative	1	1	2	2	1	3	1						3	1	15
P-03	Inhouse Memos: Test Schools Training Visits Reports				1		1		1					2		5
C-04	Test Schools' Personnel (Trainees) Welfare	1	1			1					1	2		1		7
E-05	Training Sessions: Group Development Intervention Method										1	1	1	1		4
E-06	Observations Coordinating: Test Schools' Faculty Interaction						1	2	1	1	1					6
P-07	Summary Reports (Inhouse Progress Reviews)	2			1						1					4
E-08	Project Progress: Maintaining it						1		4		1			1	2	9
E-09	Project Budget: Maintaining it							1	2	1			1	2	1	8
E-10	Staff Hiring: Graduate Research Assistants							2				1				3
Cluster Totals		4	3	2	5	12	7	5	12	4	7	12	3	17	5	98

TABLE 4

Enabling Knowledges Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Knowledges (Category code no. and label for coding set S-1)									
No.	Label	03 Subjects related to RDD&E	04 Technical/professional topics	05 Project focus topics, external	06 Project variables; external	07 Project operation: general	08 Project operation: specific	12 Resources: personnel	17 Writing styles	23 Char's of target audience	Output Totals
E-01	Laboratory Training Program (Field Test Intervention Method)		1	1							2
P-02	Interaction Observation Form: Evaluative				1		2				3
P-03	Inhouse Memos: Test Schools Training Visits Reports					1			1		2
E-04	Test Schools' Personnel (Trainees) Welfare									1	1
E-05	Training Sessions: Group Development Intervention Method	1									1
E-06	Observations Coordinating: Test Schools' Faculty Interactions		1								1
E-08	Project Progress: Maintaining it	1									1
E-10	Staff Hiring: Graduate Research Assistants							1			1
Category Totals		2	2	1	1	1	2	1	1	1	12

TABLE 5

Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (Category code no. and label for coding set S-2)																
No.	Label	02 Facilitating people interaction	05 Programming project events	10 Analytical data handling	11 Disciplining self	14 Writing	17 Interpreting language	18 Finding fits/integrating	22 Estimating expenses/resources	25 Applying measurement tools	27 Using equipment/systems	29 Getting others to perform	30 Adaptation to situation/demands	34 Coordinating activities	35 Communicating clearly	36 Cataloging/classifying	39 Constructing measurement tools	Output Totals
E-01	Laboratory Training Program (Field Test of Intervention Method)	1		2	1	1				1	1					1	1	10
E-05	Training Sessions: Group Development Intervention Method											1						1
E-06	Observations Coordinating: Test Schools' Faculty Interaction						1							1				2
P-07	Summary Reports: Inhouse Progress Reviews			1		1												2
E-08	Project Progress: Maintaining it		1						1					2				4
E-09	Project Budget: Maintaining it			1					1				1		1			4
E-10	Staff Hiring: Graduate Research Assistants							1										1
Category Totals		1	1	4	1	2	1	1	2	1	1	1	1	3	1	1	2	24

TABLE 6

Enabling Sensitivities Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Enabling Sensitivities (Category code no. and label for coding set S-3)													Output Totals
		01 Values of self and others	04 Interactions of self and others	07 Context of objectives	11 Awareness of method	16 Existing value systems	18 Potential conflict of interest	22 Responses of target audiences	23 Cost benefit factors	27 Acceptability of output	31 Nature/scope of output	34 Willingness of take guidance	36 Feeling of personal security	38 Emerging directions	
E-01	Laboratory Training Program (Field Test of Intervention Method	2			2	1	1	2		1		1	1		11
P-02	Interaction Observation Form: Evaluative		1					1			1				3
P-03	Inhouse Memos: Test Schools Training Visits Reports							1							1
C-04	Test Schools' Personnel (Trainees) Welfare	1													1
E-05	Training Sessions: Group Development Intervention Method							1						1	2
E-09	Project Budget: Maintaining it								1						1
E-10	Staff Hiring: Graduate Research Associates			1											1
Category Totals		3	1	1	2	1	1	5	1	1	1	1	1	1	20

Chapter IV: Supplementary Data

This chapter contains information about output characteristics, the backgrounds of the staff, and the training and resources needed for carrying out the job activities within the project.

Classifications of Output Characteristics

Outputs may be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, production), (c) Character (knowledge, technology, implementation, or information), (d) Level (focal, component, or facilitating), and (e) Stage of completion. These five schema are represented in Table 7 for each project output identified, with frequencies summarized for each category.

Summary of Staff Backgrounds

The information in this section is based on the questionnaire responses of the four staff members who were interviewed from Project "Unitized."

Highest degrees attained. Of the four staff interviewed, the Project Director and Co-Director held doctoral degrees in social psychology, and the two graduate assistants held master's degrees in guidance and counseling. Both graduate assistants were in doctoral programs in counseling psychology.

National professional memberships. The staff indicated memberships in the following professional organizations:

1. American Educational Research Association.
2. American Psychological Association.
3. Society for General Systems Research.
4. American Statistical Association.
5. National Training Laboratories - Institute for Applied Behavioral Science.

Prior work experience. Table 8 displays the distribution of total work experience of the four staff interviewed within eight work setting categories. (It should be noted that the Project Director has indicated that two persons have more than four years of experience in other work settings; however, this was not indicated in the original data and therefore is not reflected in Table 8.)

TABLE 7

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
*E-01	Laboratory Training Program (Field Test of Intervention Methods)		X			X				X								X		
*P-02	Interaction Observation Form: Evaluative	X				X				X		X					X			
*P-03	Inhouse Memos: Test Schools Visits Reports	X				X				X				X				X		
*C-04	Test Schools Schools' Personnel (Trainees) Welfare			X		X				X								X		
*E-05	Training Sessions: Group Development Intervention Method		X				X		X									X		
*E-06	Observations Coordinating: Test Schools' Faculty Interaction		X			X				X								X		
*P-07	Summary Reports: Inhouse Progress Reviews	X				X				X			X							X
*E-08	Project Progress: Maintaining it		X			X				X										X
*E-09	Project Budget: Maintaining it		X			X				X										X
*E-10	Staff Hiring: Graduate Research Assistants		X			X				X										X
P-11	Proposal: Research Design	X				X				X		X			X					
C-12	Project Staff Welfare			X		X				X										X
C-13	Community Relations: General and Professional			X		X				X										X
P-14	Organizational Development Training Intervention Method (Full Faculty)	X					X		X			X						X		
E-15	Training Sessions: Organizational Development Intervention Method		X				X		X									X		
E-16	Observations Coordinating: Test Schools' Faculty-Student Interaction		X			X				X								X		
P-17	Handbook: Manual of Organizational Development Techniques	X					X	X				X						X		
P-18	Intervention Schedules: Workshop (Training Programs First Phase)	X				X				X		X				X				
P-19	Data from Schools Where Principal Only is Trained	X				X				X				X					X	
P-20	Ph.D. Dissertations (2): Project Technical Reports	X					X	X			X							X		
P-21	Journal Articles: Professional Technical Reports	X				X		X					X						X	

TABLE 7 concluded

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-22	Project 3002 "Unitized" Final Report	X					X	X			X								X	
E-23	Training Workshop: Training Programs First Phase		X				X		X							X				
P-24	Handbook Outline (see Output 17)	X					X		X			X				X				
P-25	Interview Schedule (Guide): Diagnostic (Revised)	X				X				X		X				X				
P-26	Pretest Data	X				X				X				X				X		
P-27	Interview Schedules (2 Guides): Evaluative (Revised)	X				X				X		X				X				
P-28	Questionnaires (3): Evaluative (Revised)					X				X		X				X				
E-29	Data Analysis		X			X				X									X	
P-30	Check Lists: Progress Monitoring	X				X				X		X								X
E-31	Staff Task Assignments		X			X				X										X
C-32	Work Quality Maintenance			X		X				X										X
P-33	Posttest Data	X				X				X				X					X	
C-34	Coordination with Other Projects In Program			X		X				X										X
E-35	Negotiating with Field Test Schools		X			X				X					X					
P-36	Group Development Training Intervention Method (Principals and Unit Leaders)	X					X		X			X						X		
P-37	Data from No Intervention Schools	X				X				X				X					X	
E-38	Staff Meetings		X			X				X										X
E-39	Policy Decisions: Senior Project Staff		X		X					X										X
C-40	Intraagency Communication			X		X				X										X
Classification Frequencies[b]		21	14	6	1	30	9	4	6	30	2	11	2	5	2	6	1	12	6	13

[a] The specific output characteristics are identified as follows:

Structure

p - product
e - event
c - condition

Function

ps - policy setting
m - management
p - production

Level

f_1 - focal
c - component
f_2 - facilitating

Character

k - knowledge
t - technology
i_1 - implementation
i_2 - information

Completion Stage

1 - completed over one year ago
2 - completed 3 to 12 months ago
3 - completed within last 3 mos.
4 - currently in progress
5 - not yet underway
6 - on going (continuous)

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

TABLE 8

Distribution of Staff Work Experience within Work Setting Categories

Work Setting	Amount of Experience			
	No Experience	Less than 1 yr.	1 - 4 years	5 or more years
In R, D, D, or E Work	0	0	2	2
In Administrative Work	1	0	0	3
In College Teaching or Research	0	0	2	2
In Public Schools	2	0	1	1
In State or National Education Agencies	4	0	0	0
In R & D Centers	0	0	3	1
In Present Organization (may be concurrent with other areas above)	0	0	3	1
In Other Work Settings	3	0	1	0

Summary of Interviewee Responses

Present position requirements. Four questions asked of the four interviewees are stated below with their responses. The responses are listed by type of position held by the respondent.

Question 1: What specific knowledges and skills does (your) position require?

Project Managers

1. Knowledge of social psychology of organizations and small groups.
2. Knowledge of organizational development training action research techniques.
3. Knowledge of research methods in human behavior in organization.
4. Interpersonal communication.
5. Group problem solving.
6. Ability to deal with emotions of staff and "customers" as information, not as an extraneous embarrassment.

Project Staff

1. How to relate to people.
2. How to write clearly and concisely.
3. How to recognize own feelings toward others and use them constructively.
4. Training skills--how to lead a group in the accomplishment of a task.
5. Design skills--how to plan for interventions (training).
6. Research skills--how to evaluate what has happened.

Question 2: How many years of work experience does (your) position require in educational research, development, diffusion, and/or evaluation?

Project Managers

One to four years experience.

Project Staff

No previous RDD&E experience was necessary.

Question 3: How many years of work experience does (your) position require in administration or management?

Project Managers

Some, but less than one year.

Project Staff

No previous administrative or management experience was necessary.

Question 4: Academically (your) position requires which degree?

Position Title	Degree Level of Interviewees	Degree Level Interviewees Indicated Position Required
Project Managers	Doctorate	Doctorate, "but to do the work, degrees are irrelevant."
Project Staff	Master's	Master's, Bachelor's

Support resources. The service and equipment resources used by the personnel on this project were:

1. Support services used:

   (a) Equipment construction (mechanical, electronic, carpentry, etc.).
   (b) *Printing.
   (c) Other reproduction services: "mimeo, Xerox, ditto."
   (d) Photography.
   (e) *Art work and illustrations.
   (f) Drafting.
   (g) *Technical writing.
   (h) *Editing.
   (i) *Secretarial service, other than typing.
   (j) *Typing.
   (k) *Purchase of supplies and equipment.
   (l) *Library holdings.
   (m) *Subscriptions to technical and professional journals/periodicals.
   (n) *Requests for documents or publications not locally available.
   (o) *Computer analysis services (data processing).
   (p) *Computer program writing.
   (q) *Statistical consultation.
   (r) Audio-visual aids and devices.
   (s) *Subjects for experimentation or try-out of procedures.
   (t) *Travel arrangements.
   (u) *Budgetary and other fiscal accounting.
   (v) *Scoring of test items.
   (w) Television facilities and equipment.
   (x) Other: "consultants."

*Support services considered by one or more interviewees as highly critical to carrying out the work of the project.

2. Support equipment used:

   (a) Dictating equipment.
   (b) Desk calculators.
   (c) Onsite computer.
   (d) Key-punch machine.
   (e) Data card sorter.
   (f) Readers of microfiche and microfilm.
   (g) Other significant equipment: "typewriter, telephone mimeograph, library."

General activity significance. By questionnaire, project personnel interviewed were asked to rate several general activity categories and associated specific activities on a 0 to 7 scale. The scale represents the amount an activity plays a part in the respondent's project work from 0, "Definitely not a part of my project activity, does not apply," to 7, "A most significant part of my work."

TABLE 9

Ratings of General Activity Significance

General Activities	Ratings by Position			
	Project Director	Project Co-Director	Graduate Res. Asst. 1	Graduate Res. Asst. 2
Reading	5	4	3	3
Designing or planning of procedural activities for the project.	7	7	4	4
Developing research tools or other information-gathering instruments.	7	7	2	4
Collecting data or other systematic gathering of information related to project goals.	7	7	5	4
Analyzing data to develop meaningful generalizations or descriptions.	7	7	2	3
Writing.	7	7	2	4
Supervising and coordinating actions of others and/or of materials resources.	7	7	1	5
Teaching or training	6	2	6	5
Meeting, consulting, or advising.	6	6	0	5

Chapter V: Project Dynamics

The Project

The life of Program 30, as other programs in CASEA, depends on its projects. The program provides a general definition of research goals within which projects can be developed and conducted, and it provides goals and resources that the individual project can call upon, but in itself it is only an organizational structure.

When looking at a project within a program context it is very difficult for the observer in a brief time to identify precisely its parameters. The various inputs, overlaps, and interactions cloud the picture considerably. But the benefits of such a context are obvious in the coherence of goals that the program can provide for its projects.

During an interview it was indicated that some work done on the "Unitized" Project this summer (1971) will feed into a new project. This is important in understanding the program context of this project. The research effort is an ongoing effort with the limits of one project overlapping and feeding into another. Ideas based on previous experience are developed into a project that produces more ideas for more projects. So a project is not seen as a neatly defined unit of activity, but rather a cluster of activities feeding out of previous work and sprouting additional work. Consequently some of the outputs of this project are not solely dependent on work in this project, and in this sense the project origin cannot be precisely dated. For example, the handbook or manual that will be written at the conclusion of the project will rely heavily on input from other projects in CASEA and Program 30, as well as input from work going on outside the agency.

The sequence of outputs of this study are, of course, directly related to the sequence of functions defined in the research design.

1. Designing and developing research strategies.
2. Evaluation of four intervention methods.
    - (a) Group development method.
    - (b) Organizational development method.
    - (c) Principals only trained.
    - (d) No intervention.
3. Analysis of data.
    - (a) Theory testing.
4. Reporting.
5. Refining of intervention (training) techniques.

During the evaluation of the four intervention methods (the second function above), there is anticipated collaboration with a project in Program 20. This association will apparently be one where the project in Program 20 will collect data in some of the schools participating in the "Unitized" Project. This data will be used in both projects.

The relationship of the project staff to the field-test schools is not strictly a research-like association. The selection of a school must have more payoff than simply being a research subject. In this project this could be a major problem if not properly handled. However, two factors seem to make the relationship between the project staff and the schools more than just a research association. First, all the schools participating either initially requested or showed interest in gaining help from CASEA in organizational change. Second, due to this type of entry into the schools, the project staff function mostly as consultants.

The consultant-type approach used by the program in its field-site interface with schools has provided for a building of a basic repertoire of techniques in group dynamics, games, and data collection instruments that are used and modified from project to project. The impression is that practice and development occur simultaneously.

The training that occurred in the first phase of the intervention training program (workshop) required a consultant role that was directive and somewhat promotional. However, during the second phase of training (in the schools) the sessions have become more observational in nature and the trainers' roles have become more that of supportive observers.

Built into the training program are diagnostic data feedback loops. These allow the trainers to modify training strategies to meet needs or problems as they arise.

The support services available to this project seem very adequate. In addition to secretarial and clerical services, the project has use of CASEA's library and continuous use of computer facilities on campus.

The Setting

The offices of the project staff are located on the second floor of a remodeled dormitory building on the university campus. The hallways are narrow, mostly gray in color, and so maze-like that one unfamiliar with them can easily become lost. The offices themselves are rather small.

All the offices are clustered together along a short hallway. A large conference room is available directly adjacent to the offices, and a secretary is located nearby in an enlarged section of the hallway. Most of the noise one hears in the offices is the muffled clacking of a typewriter or the footsteps and voices of people in the hall.

The Management Style

The Project Director and Co-Director share the management responsibilities of this project. The Director is more concerned with the technical aspects of social innovation and generating ideas and designs, while the Co-Director handles many of the pure management tasks of the project such as budget, personnel, etc. This provides an interesting match of personalities that seems to work quite well in that they appear to coordinate their interests and inclinations very effectively.

Between them, they provide the basic project management and policy within which the project staff functions. However, the whole staff is involved in providing the production management routines and schemes, as well as accepting individual work assignments for getting the outputs of this project generated.

Most of the staff have tasks in more than one area of responsibility. The Directors not only determine the basic organization for project management and set the policy or philosophy of the project, but they also participate in production management and in the actual production of outputs. The graduate assistants' tasks include training, designing of intervention schemes, and writing. There is considerable overlap of people on tasks, except in training and interaction observation. The observation task is only done by nontrainers. This is a result of experience from earlier in the project when this task was done by trainers.

The Directors maintain relationships with NTL; one being a fellow and the other a professional member. They expect to use a group of principals, trained in organizational development by NTL, as one of the control groups for this project. This is an informal relationship that they will use for the purposes of this project.

The Directors have attempted to build a closely knit research team. They claim that they want an intimate working relationship among all the staff, one that is characterized by open and honest interaction. The people should know themselves and their problems very well and be willing to have other members of the staff confront them about these problems. An essential aspect of the dynamics of this project is its group process and teamwork. The project is both informal and systematic.

Most of the work planning and allocation of responsibilities take place in the weekly project meetings. Chairmanship for these meetings rotates weekly among the 12 staff members so that all have an opportunity for this experience. In these meetings the discussions range from staff work problems to what has to be done next on the project. Work could be allocated on a variety of bases: (a) whoever is available at the time, (b) who has the most experience, (c) who needs and wants the experience, and (d) such that all members get equal exposure in front of site personnel--to build site personnel confidence in all project staff personnel.

Beyond the communication that takes place in meetings such as those described above, and informally in someone's office or by chance meeting, communication in the project is maintained by memorandums. These are prepared after each test school visit by training team members for various project functions concerning the whole staff. Periodically, the training team leaders are requested to submit a summary report that serves as an inhouse monitoring of project progress.

Issues

Probably no project will ever be free of problems or concerns, and the "Unitized" Project is not unique in this respect. During the training program, two of the six schools that were participating in the group development intervention method dropped out of the project. Although this is of concern to the project, the fact that they dropped out is not a "problem," since part of the research being undertaken is to find out why schools drop out. As an R & D project within an R & D center, part of the purpose of the project, therefore, is to find out whether or not any school does drop out, and if so why.

In the case of these schools, the causes of their dropping from the project are still under investigation. It appears that hard feelings developed between faculties and the principals, since the latter had selected participants for the program rather than having the faculty select them. Generally, however, there have been more applications for participation than can be handled.

Another issue facing the project is that the school district in which most of the participating schools reside cannot, they feel, provide money for remodeling in the schools that is important to the project's goals. Apparently many of the faculty in these schools are not willing to move toward the project goals until that money is available. This issue is also approached by the project as part of their research, and it is not viewed simply as a problem to overcome. It is considered part of the purpose of the project to explore these occurrences and to examine their nature.

Chapter VI: Implications for Training

This project provides a training setting for graduate students, as do all projects in CASEA. What is emphasized in training here seems to carry many implications for the training of educational R, D, D, and E personnel in general, and specifically of educational research personnel as found in the "Unitized" Project.

All of the "Unitized" Project staff interviewed emphasized that the traditional laboratory training approach is not appropriate to the field-setting, action research they are doing. A "reasonable" amount of knowledge about research design and procedures is necessary, but it must be applicable to "natural situations, not the rats in the basement." They feel that people heavily trained in the traditional research methods courses "are unable to go into the field because they cannot control things as they can in the laboratory."

Much attention is given to controlled procedure in the laboratory setting research approach, but such attention to control as is possible in a laboratory would make the work of a project like this improbable. In action research one usually does not expect to have the same level of control as is possible in the laboratory. Nevertheless, the goals of an action research project such as this one are valuable to the solution of problems. Such goals should not be disregarded because the controlled laboratory research methods cannot rigidly be adhered to. Flexibility in procedure is one requirement for any level of success in reaching a goal in "natural situation" research. The goal, however, must be well defined and remain firm, and a design for reaching such a goal must allow for flexibility in proceudre. Thus, any training that is appropriate to this kind of research should include research courses that stress methods allowing flexibility, but still maintaining enough control to preserve the integrity of the research.

This project also indicated a need for flexibility in the people who work in educational research. On the "Unitized" Project there was a concern that people tend to be either people oriented or data oriented and not many seem to be oriented to both. The Co-Director was concerned that he was finding it difficult to locate people who were data oriented for this project while people that were people oriented, at least among graduate student applicants, were much easier to find. Ideally, overlapping orientations within individuals would seem to make the better educational researcher. But the need for flexibility in people does not stop here.

All the people on the "Unitized" Project were working on at least one other project. The average percentage of FTE assigned to "Unitized" over the four staff interviewed was 39%. The range was from 25% to 50%. As in other projects that this writer has visited, the personnel have been carrying concurrent commitments to two or more projects. This kind of multiple assignment need for flexibility should be reflected in training programs.

In the opinion of the staff interviewed on this project appropriate training programs would devote a large portion of time to giving students actual experience on several ongoing projects. The traditional classroom setting was not felt to be appropriate to this training. As one Director stated, "The best kind of training is to do something, to experience something and then talk about it and read about it afterward." The other emphatically supports this opinion in his statement that training of educational R,D,D, and E personnel should be "doing, not just talking about it."

The Directors of this project feel that the development of essential skills in working as a member of a team, or in coping with the emotional situations that are bound to arise, and developing the high level of sensitivities to interpersonal behavior essential to effectively working with people can only be gained in an actual, "live" experience.

Actual project experience would provide the skill building experience as a team member. On this project the team approach is greatly emphasized. The very size and complexity of these activities require many people to pool their talents to accomplish their goals. "We have to maintain our team in a highly communicative, mutually trustful situation where everybody understands the interactive nature of this kind of work intellectually and emotionally." So a skill that a person needs to do this kind of work is the skill "to be a member of a team that interacts intimately." Actual project experience could provide the skill building experience needed in project team effort.

One of the skills highly emphasized on this project is the skill of writing. The ability to write clearly and concisely was highly prized. Although there was no apparent formal training procedure, the Directors did edit and critique the various memorandums and reports the graduate assistants wrote. Their comments were highly respected and on occasion unsatisfactory work was returned to the author for rewriting. The importance of writing skill in educational research cannot be overemphasized in light of this project. It is an essential activity.

From the vantage point of this project, the academic training setting is lacking in appropriateness as the sole setting for educational research personnel. Appropriate training would give considerable opportunity to the student for actual project experience, with time in the classroom contributing to the experience. The teacher in such a setting would be a working partner with his students, exposing himself to the same situations and stresses experienced by those students.

Appendix

Appendix: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. These statements were extracted from discussions with interviewees and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J:	Structure of Standards.
J-1	Standards against which outputs are judged (output oriented).
J-2	Standards against which processes and/or operations are judged (process oriented).
Code LM:	Primary Categories of Standards.

TASKS

Code NO:	Clusters of Tasks.

ENABLERS

Code S:	Structure of Enablers.
S-1	Knowledge.
S-2	Skill or ability to perform.
S-3	Sensitivity or awareness.
Code UV:	Primary Categories of Enablers (knowledges, skills, or sensitivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the 10 analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

E-01: Laboratory Training Program (Field Test of Intervention Methods)

"In Organizational Training, we bring together the entire faculty of the school. The entire faculty is the target of the intervention; the administration, teachers, custodian, cooks. We are a disinterested mediator that tries to bring the various levels and roles into communication.

But because this is a rather extensive strategy for changing a school, we decided to compare it with a second level of intervention which we call Group Development. Group Development compares historically with what people used to call Change Agent Teams. You take a subgroup of a faculty and train them to be highly cohesive and supportive of each other. Then help them build a strategy whereby they go back to the faculty and try to bring changes in the school by implementing their strategy."

STANDARDS

J	LM	
1	12	The school changes from a self-contained to a multiunit school.
1	12	In the school teams of teachers develop, each with a team leader.
1	12	In the school a "unit" of kids instead of grade classes becomes the organizer for instruction.
1	12	In the school people meet regularly as a team and make decisions.
1	12	In the school students identify with a unit.
1	12	In the school students indicate they have several teachers.
1	04	In the school faculty clear about goals.
1	04	In the school faculty know what the role definitions are and are comfortable with it.
1	12	In the school communications skills are used and use increases throughout the year.
1	12	In the school use of systematic problem solving system rather than jump to conclusions is evidenced.
1	12	In the school shaping and formalizing group agreements on how to work together occurs.
1	12	In the school spend time periodically talking about interpersonnel processes rather than just the task for a sense of now they are feeling about their work.
1	12	Classroom changes in relation to student/teacher interactions as measured by Flander's interaction analysis system such that more clusters in room setting arrangements occur, and achievement/performance data (available from districts as a possible addition in the future) reflects improvements in growth pattern.
2	30	Teacher turnover rates fall in the school.
2	34	School desirability rating by potential teachers increases as indicated by number of inquiries.
2	34	Increase in number of kids from outside the area served by that school.

TASKS:

NO	
29	Maintain contact with school districts via demonstration, lectures, or as a consultant for events at which there are faculty and administrators. (Sometimes this is self-initiated; sometimes at their request.)

23	Select school as test sites: first two years, if close (2 hours) and showed an interest in the future--high black, high poor, high teacher turnover, high crime, diverse urban settings, district interest in team teaching and in high school student involvement.
23	Meet with school representatives and draw up a proposal for the school.
29	Meet with administrators to explain the proposal and answer questions re. the program.
29	Interact with principal, cabinet, faculty on setting up a time schedule.
29	Present the project to the faculty in a general staff meeting. Contact principal/staff about scheduling diagnostic data interviews.
29	Contact principal/staff about scheduling time for questionnaires, interviews, and observations for historical data.
05	Informally interview school faculty for preintervention data to identify problem areas.
05	Informally observe faculty and students' classes for preintervention data to identify problem areas.
05	Administer diagnostic questionnaires to faculty for preintervention data to identify organizational structure and related information.
05	Process data (tally responses, characterize in writing the high points of interviews) for intervention planning team.
05	Process interview results, by intervention team, to design the intervention.
02	Discuss the design of the intervention around the group interaction theory of the project.
22	Draw up a basic daily schedule for the intervention based on the problem areas, experience with other workshops, and a project sequence theory for training events.
31	Meet with project staff to discuss the preliminary design for group intervention.
22	Assign persons and responsiblities based on competence or desire for experience.
22	Make a detailed plan for a block of time around the assigned problem using methodology of the project.
04	Assemble any necessary materials for the intended plan.
30	Distribute the plan to all members of the intervention team.
31	Introduce the intervention training program schedule and the first section of events.
29	Explain the first section of events in the intervention (training program) and give instructions to participating field test school faculty.
31	Head up small groups when they are required by the plan.
31	Keep a detailed diary by hand of who was there, what they did, times, rate of talking, how grouped etc. for historical data which may later be used to evaluate why something happened. (time by wrist watch).
31	Informally interview participants (field-test-site faculty) in halls, johns, etc. for reactions and problems.

05	Observe, interview participants (field-test-site faculty) for a later discussion of any necessary changes.
06	Discuss with group intervention team (training team) any suggested changes in the intervention schedule.
31	Meet with training team members first one or two evenings to discuss the training program format for any general changes in focus for the balance of the week-long training workshop which initiated the training program.
05	Return to schools to collect evaluative data by interviews, observations, and questionnaires.
05	Code the data from its respective forms.
05	Make gross eyeball comparisons across sites and within sites on evaluative data collected.
05	Evaluate data using correlations, analyses of variance, t-tests, analysis of co-variance, and various non-parametric techniques as chi-square.
29	Consult with faculty/administration re. problems, progress, etc.
24	Take corrective action where it is possible to do so with respect to the faculty working as a team within the scope of the project's objectives.
33	Consult with project staff regarding problems which may necessitate further intervention sessions.
24	Participate in faculty meetings to monitor, through observation, progress of the program on the faculty.
31	Report findings in a memo to be distributed to project staff and filed for record.

ENABLERS:

S	UV	
3	27	Sensitive to effectiveness of exercises used in an intervention.
3	18	Senstitive to interpersonal tensions which participants bring into the program.
3	22	Sensitive to feedback from participants regarding one's relationship with the participants during the intervention.
3	22	Sensitive to participant's perception of the intervention team through the degree of open criticism.
2	02	Skill to "performing" in either large or small groups by being able to lecture, maintain rapport, be attractive and interesting without dominating or being abrasive.
2	36	Skill in being an "historian," i.e., observing and cataloging a wealth of information by hand.
2	25	Skill in being an "observer," estimating reliablity of data, selecting relevant data, etc.
2	10	Skill in a variety of data analysis techniques including correlations, analysis of variances, analysis of co-variances, t-test, and non-parametric techniques as chi-square.
2	39	Skill in preparing questionnaires.
2	11	Skill in carrying out an interview objectively.

2 39	Skill in preparing observation forms.
2 10	Skill in working with tables and numbers so as not to be afraid of either them or statistics.
2 27	Skill in using the desk calculator for correlation, chi-square, etc.
2 14	Skill in composition in order to write up a report or article for a designated audience.
1 04	Knowledge of a basic level of psychology and sociology in order to feel comfortable with the vocabulary and concepts, especially related to group development theory.
1 05	Knowledge of what it is like to be in an unstructured group such as a sensitivity or a T-group.
3 01	Sensitive to self-esteem as a factor in one's ability to write well.
3 16	Sensitive to career point as a factor in one's ability to write well.
3 36	Sensitive to confidence as a factor in one's ability to write well.
3 11	Sensitive to the team feeling necessary to operate in the project.
3 11	Sensitivie to crisis orientation, as opposed to being very structured, by having had experience in such as a long hike, mountain climbing, participated in civil rights marches, Peace Corps, social science interview in slums.
3 01	Aware of how you react to other people to facilitate what you are trying to accomplish.
3 34	Sensitive to not being too hung up or unfavorable about schools, i.e., thinking that they have "to change like crazy" to be any good.

P-02: Interaction Observation Form: Evaluative

"The main thing we wanted to test was, were people trying to understand other people. This is basically what our seeking category means. Also, we wanted to see how much interference there was such as somebody telling a joke, or a side conversation, or things of that sort. This is the meaning of our blocking and deflecting category. In addition we wanted a comparison between how much time was spent on task and how much time was spent on process. An extrememly rough instrument, but we hoped it would give us the kind of thing we wanted which was some quantitative data."

STANDARDS:

J	LM	
1	05	The observation form is capable of obtaining data for at least two or three of the types of data that the "Unitized" Project was interested in.
1	16	There is a high correlation (visual) between this and the questionnaire and interview data.
1	21	Observers report that the form and instructions are "extremely easy" to use.
1	22	90% reliatility (visual was actual method, since it was obvious) in data collection.
1	07	Feeling that it worked right from having used the form.

TASKS:

NO	
33	Decide there was a need for more quantifiable data to support interview and questionnaire data.
22	Assign three people to work on observation system for a small group working together.
01	Review literature in library for observation systems such as Bayles.
02	Talk to colleagues about experience with various observation systems.
31	Write memos to project staff describing finding on observation systems.
04	Select aspects of other systems which are desirable for application to Project "Unitized".
31	Discuss writing a report on findings and recommendations re. observation system.
31	Write the report of findings and recommendations for an observation system from notes taken during discussion, memos, and library notes.
03	Design an observation form which was "Relevant; and easy to use."
03	Specify criteria for use of the instrument for use in initial tests.
05	Test the observation instrument on soap operas for ease of use and relevance of application.
06	Subjectively evaluate results of informal test of the instrument for incended purposes.
04	Specify a set of instructions based on the experience with the instrument.
06	Test the instrument during actual "intervention" for ease of use and applicability in obtaining desired information and using two observers to check for reliability.
06	Evaluate test of instrument and determine whether changes were necessary.

ENABLERS:

S	UV	
1	08	Knowledge of "group development" operations within the project.
3	22	Sensitive to "flak" between members of small groups which occur in the group development "interventions."
3	31	Sensitive to relevance of possible observation items to the "Unitized" subject and its requirements of simplicity and quantifiabiltiy of those items.
1	08	Knowledge of what type of data was needed, e.g., communication.
1	06	Knowedge of how to enter a school without setting faculty on alert, e.g., dress and attitude.
3	04	Sensitive to how strong one is coming on as an expert. (Too much is bad.)

P-03: Inhouse Memos: Test Schools Visits Reports

"Theoretically we (training team leaders) write a memo every time we go to a school. That has been true for me except for one or two times when I have just dropped by and haven't done anything specific. This is mainly so that we can go back and see exactly what we did do, since we cannot do exactly the same things always."

STANDARDS:

J	LM	
1	13	A good comment from Project Directors (recognized as competent and skilled authors, one of whom used to be an English instructor) rather than a lot of red marks and questions.
1	04	Good grammer, clear, precise, concise.

TASKS:

NO	
31	Take notes at site visitation for memo.
31	Write a summary of what went on that is pertinent to the project including a feeling for (a) how smooth the process was going, (b) how one was seen by the others, and (c) any insights which might be applicable to any other part of the project.
06	Discuss the summary with team partner for completeness and accuracy.
04	Write the memo from the summary.
22	File a copy of the memo by school and project.

ENABLERS:

S	UV	
1	17	Knowledge of how to write clearly and concisely.
1	07	Knowledge of the project and its goals in order to pick out pertinent items for action and memo.
3	22	Sensitive to feeling of "where people are" in order to pick out pertinent items for action and memo.

C-04: Test Schools' Personnel (Trainees) Welfare

"Knowing people well enough to know when they are behaving some different way or something is wrong. I think another thing is having a lot of confidence in them."

STANDARDS:

J	LM	
1	07	A feeling that things are going smoothly from discussions with faculty members.

TASKS:

NO	
05	Observe faculty to be able to distinguish normal and abnormal behavior through frequent contact.
01	Discuss problems with individuals exhibiting abnormal behavior to see if it may be overcome.
02	Discuss problems with other faculty who have sensed or discussed the problem for their interpretation and reaction.
31	Participate in informal gatherings to help develop team feeling, trust, and to isolate problems that would not otherwise surface.
24	Do something about a problem whenever it is within the realm of the project and affects the team work.
29	Verbalize confidence in individuals by building on strong points and expressing one's feeling that they are capable of doing difficult tasks.
29	Decide how to work around problems that interfere with the team.

ENABLERS:

S	UV	
1	23	Knowledge of the people's normal behavioral patterns in order to isolate abnormal patterns and underlying problems.
3	01	Sensitive to liking the faculty and caring about them.

E-05: Training Sessions: Group Development Intervention Methods

"We now concentrate on giving group process feedback and tend not to take as active a role in the discussion as was the case earlier in the training program."

STANDARDS:

J	LM	
2	10	Distribution of conversation in the group--many people participated.
2	38	Each member of the group has about an equal amount of time for comments.
2	26	The comments of the members of the group reflect a clarity of goals--they know what the meeting is to accomplish.
1	12	The group makes progress toward the goals set for the meeting.
2	26	Each member has a clear understanding of what they are to do when they leave the meeting.

TASKS:

NO	
29	Provide feedback during a meeting in the form of comments on the group process in terms of how some people are not speaking, etc.
30	Suggest to the group a survey to allow each member an opportunity to express his feelings about the issue under discussion.
31	Provide a summary of impressions about progress of the group at conclusion of meeting.
24	Monitor the processes of the group during the meeting.

ENABLERS:

S	UV	
1	04	Knowledge of group counseling techniques.
2	29	Skill in leading a group to action.
3	22	Sensitive to how members of a group are responding in the meeting.
3	38	Sensitive to the direction the group is taking in its decisions.

E-06: Observations Coordinating: Test Schools' Faculty Interaction

"One of my primary responsibilities has been arranging and coordination of observations in the different schools that are participating in this project."

STANDARDS:

J	LM	
2	07	A meeting in the school scheduled to be observed is observed.
1	21	A check of reliability by comparing tallies of two observers of the same meeting yields an 80% agreement.

TASKS:

NO	
23	Arrange for observations in the schools by having available staff signup to observe at specified times.
24	Check to assure that a scheduled observer gets to the school meeting.
22	Arrange for a substitute observer when the observer scheduled can not keep the appointment.
21	Brief new observers on task by going through the observation form and instructions with them.
21	Arrange for a new observer to go out with an experienced observer.
06	Monitor observer reliability by periodically having two people observe the same meeting and compare observation tallies.

ENABLERS:

S	UV	
1	03	Know what reliability, in research, means and why it is significant.
2	17	Skill in interpreting procedures to people not familiar with what you are doing in training them to use observation system.
2	34	Skill in coordinating available personnel with the tasks that need to be done when they need to be done.

P-07: Summary Report: Inhouse Progress Review

"I do miscellaneous administrative things that come up along the way such as writing the periodic summaries of what is happening on the project. We probably write three or four per year."

STANDARDS :

J	LM	
1	01	Report is complete in that it describes each of the main themes determined from review of memos.
1	01	Report is complete in that it contains an appraisal of progress toward project goals for the field test site.
1	13	The Project Director OK's the rough draft and gives it to the typist.

TASKS:

NO	
01	Review memos written in period to be covered in report.
01	Determine main themes contained in the memos.
04	Write a summary, a couple pages in length, of the main themes in the memo.
24	Give rough draft to Project Director for editing.

ENABLERS :

S	UV	
2	10	Skill in organizing a large amount of random information.

2 14	Able to write a short summary of a large amount of information that clearly and accurately communicates.

E-08: Project Progress: Maintaining it

"I guess the short way to say it is monitoring."

STANDARDS:

J LM	
2 07	Those activities planned for are actually carried out successfully.

TASKS:

NO	
33	Decide when to inititate major phases of project plan within unit/schedule originally set.
24	Assure that meetings to plan the details for work in each phase are scheduled at an appropriate time.
22	Request summary reports of progress within project plan from team leader of each training team.
22	Assure that contacts with schools are made at the appropriate time to arrange for the next round of data collection.
06	Assure that all parts of the project committed to in original design are done.
22	Make check lists by which to monitor the progress of work within a phase of the project.
31	Participate in planning meetings where jobs and responsibilities are allocated and problems discussed.
22	Make detailed plan for segment of work when coordination of people is essential.
33	Decide when progress reports should be made from informal assessment of work progress.

ENABLERS :

S UV	
2 34	Ability to keep major project time units in mind to assure orderly and timely completions of each part of the project.

2 22 Able to estimate how much time it takes to get a specified unit of work done considering the nature of the work and other demands on staff time.

2 34 Able to attend to details by keeping calendars or writing notes to oneself.

1 03 Knowledge of research procedures and design in terms of what must be done and in what order.

2 05 Able to make detailed plans for the operation of a segment of work to insure matching of personnel and tasks.

E-09: Project Budget: Maintaining it

"The total amount is controlled outside the project. It is one of those things where everybody has a little discretion within what he gets. USOE has a little discretion within what they get from Congress. Our center has a little discretion within what we get from USOE and I have a little discretion within what is allocated to me within the center."

STANDARDS:

J LM

2 11 Expenditures are maintained within limits of total amount of money available to project.

TASKS:

NO

22 Request special budget report when sense that expenditure is greater than allowable for a given unit of project work.

31 Ask for advice on appropriate action to take when in doubt about a budget item.

23 Request through agency director for special assistance such as additional secretarial help or supplies.

21 Decide on one employee at twice the salary or two employees at half salary for the year.

33 Decide whether can go over initial budget on travel and equipment and supplies.

31 Receive request from staff for OK of expenditure for various project tasks.

22 Monitor expenditure against remaining pool of money by using monthly budget report from business manager.

30 Keep agency director and business manager informed of special demands of budget they may expect in future that were not in the original plan.

ENABLERS:

S	UV	
2	10	Able to do basic arithmetic, add, subtract, multiply, and divide by pencil and paper or using a desk calculator.
2	22	Able to anticipate special demands on budget that not initially planned for.
2	35	Able to communicate problems to experts.
2	30	Able to receive advice and act on it.
3	23	Sensitive to expenditure rate within "units" of project activity.

E-10: Staff Hiring: Graduate Research Assistants

"At present there is no formal way of training people for this kind of work, and there is no physical, recognizable channel for recruiting. It is catch as catch can. The way we actually do it is to use our informal methods of communications which reach all over the country to hear of people who might want to come to school again."

STANDARDS:

J	LM	
2	36	Applicants credentials meet knowledge and skill requirements such as background in social-field setting research and skills in working with people and/or data.

TASKS:

NO	
29	Maintain communication by informal methods with universities and colleges nationally to attract potential staff.
21	Fill two or three positions (graduate assistants) per year of a total of nine positions.

21 Decide to hire an applicant on basis of work experience/educational background, fit with kind of staff needs we have, and the applicants willingness to study for an advanced degree.

ENABLERS:

S	UV	
1	12	Knowledge of where (what schools; universities or colleges) people with the background and skills needed are most likely found.
3	07	Sensitive to different types of staff (people oriented and/or data oriented) that the project needs to function well.
2	18	Able to determine from application, references, and interview when possible how well an applicant fits the experience and skill needs essential to the staff position.

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CASE PROFILE NO. 2

Written by
C. Dean Pielstick

PROJECT TITLE: Consolidation: The Effects of a Modernizing School System on the Aspirations, Achievement, and Adjustment of Students in an Appalachian County

(CONSOLIDATION Project)

AN EDUCATIONAL RESEARCH PROJECT CONCERNED WITH: Examining the short- and long-term effects of high school consolidation on the aspirations, achievement, and adjustment of students.

A PROJECT OF: University of Kentucky Research Foundation
University of Kentucky
Lexington, Kentucky 40506

This profile has been prepared according to

PROFILE FORMAT No. 3

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

The overview presents a brief synopsis of the Consolidation Project, elaborated by a discussion of the objectives, rationale, and significance of the project. This chapter also contains a discussion of the context in which the project operates.

Synopsis of the Project

Title:	Consolidation: The Effects of a Modernizing School System on the Aspirations, Achievement, and Adjustment of Students in an Appalachian County.
Responsible Institution:	University of Kentucky Research Foundation (KRF).
Funding Sources:	1. U.S. Office of Education. 2. University of Kentucky, Department of Sociology.
Funding Duration:	September 1, 1968 to May 31, 1973. (57 months)
Observation Date:	June 1971.
Present Stage of Development:	Mid-project.
Expected Outcome:	New knowledge regarding effects of consolidation.
Level of Funding and Duration:	Medium (level 4 of 7 levels)
Agency Setting:	University.
Setting of Primary Location of Work Efforts:	Appalachian high schools and student residences.

Staff Summary (Current):	Professional
Total Full Time Equivalency (in man years):	.83
Number of Personnel Assigned:	2
Professional Specialties of Staff: Sociology (2)	

Objectives, Rationale, and Significance of the Project

The Consolidation Project was designed "to assess the effects of high school consolidation on the aspirations, achievement, and adjustment of students by studying students in a newly-consolidated school in Avery County, North Carolina over a four year period."[1] During the first two years, data were also collected on students in a nonconsolidated school in McDowell County, North Carolina. The two groups are to be compared for differences in short and long term effects of consolidation. In addition, "within school variations in aspirations, achievement, and especially adjustment will be studied in the consolidated schools."

The reasons for conducting the study are that "many educators and laymen have advocated school consolidation and school district reorganization as a means of achieving quality education through the improvement of physical facilities, of teacher and curriculum upgrading, and through more efficient planning. Achieving quality education by means of consolidation has specifically been recommended for the Appalachian region to help bridge the gap between this relatively underdeveloped section of the country and the larger society, and in order to prepare students from this area for more productive participation in urban industrial American society. Advocates of consolidation and reorganization point to research which shows obvious improvement of facilities, transportation, curriculum enrichment, and the like. Research linking these school improvement factors to student improvement factors, such as occupational and educational aspirations, achievement, and adjustment is limited and inconclusive. The most recent and thorough study (the Coleman Report)[2], in fact, indicates that school factors are not so important in influencing achievement as are other factors."

The significance of the project is to provide some needed information to help fill this void, from which it may be possible to generalize findings to "other areas within Appalachia, the United States, or the Third World, wherever modernization of school systems through consolidation is contemplated."

Context in Which the Project Operates

Relationship to other agencies. The Consolidation Project is being conducted by an Associate Professor and one of his graduate assistants within the Department of Sociology, University of Kentucky. The department provides 25% of the financial support for the project. In addition, other staff and graduate students serve as informal consultants to any needs of the project requiring assistance. Both project staff members have also utilized anyone that happened to be around that could help, such as a student who happened to be in the key-punch room punching cards when they walked in to do the same. They also utilize the services of the computer center consultant.

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[1] All quotations on this page are from page i of the project proposal abstract.

[2] Coleman, J.S., et al. Equality of educational opportunity. Washington: Government Printing Office, 1966.

In addition, the University of Kentucky Research Foundation (KRF) monitors all university research projects. It oversees the project and provides needed assistance in policy decisions. These might include any major shifts in emphasis or fiscal matters. According to the Project Director, "The Kentucky Research Foundation probably makes the assumption of total budgetary and bookkeeping incompetence on the part of the faculty members at the university. That's the only safe assumption that they can make." Furthermore, the KRF acts as an intermediary between the project and the U.S. Office of Education (USOE) for these matters.

Another agency relationship, then, is with USOE which provides 75% of the financial support for the project. The relationship here is through the project monitor at USOE, and contact with him is generally in the form of a quarterly report. "I didn't know about it (quarterly report) and he sent me a real nice letter to remind me," the Project Director reported.

The two other important relationships in the project are with the two participating schools. There seems to be a good working relationship with both of these for gathering the necessary project data--to the extent that appropriate data are available. This issue is discussed later, it being a point which does, in fact, affect these relationships.

The schematic relationships among the preceding agencies and the Consolidation Project are illustrated in Figure 1.

Time lines. The project is scheduled over a five year time period, from 1968 to 1973, with the bulk of the work load being accomplished from May until September of each year. The original time plan, as presented in the proposal, did not include activities for 1971. However, this time has been scheduled for data collection in the field and for data analysis and interpretation for the short-run presentation of findings.

Another change in the original time line projection came about as a result of the nonconsolidated control school becoming part of a consolidation plan for Fall, 1971. As a consequence, the school record data had to be collected so that it would not become lost in the move. It was also decided to administer the questionnaire to the control group, class of 1972, as an additional measure. These activities were scheduled for May 1971, with coding and analysis extending into the short-run analysis planned for Summer, 1971.

The time line chart, Figure 2, indicates major activities. In reality, there are some activities which continue throughout the year. Due to administrative and academic loads, however, these continuing activities are necessarily limited and variable. Figure 2 also includes a listing of the activities of the project by time periods.

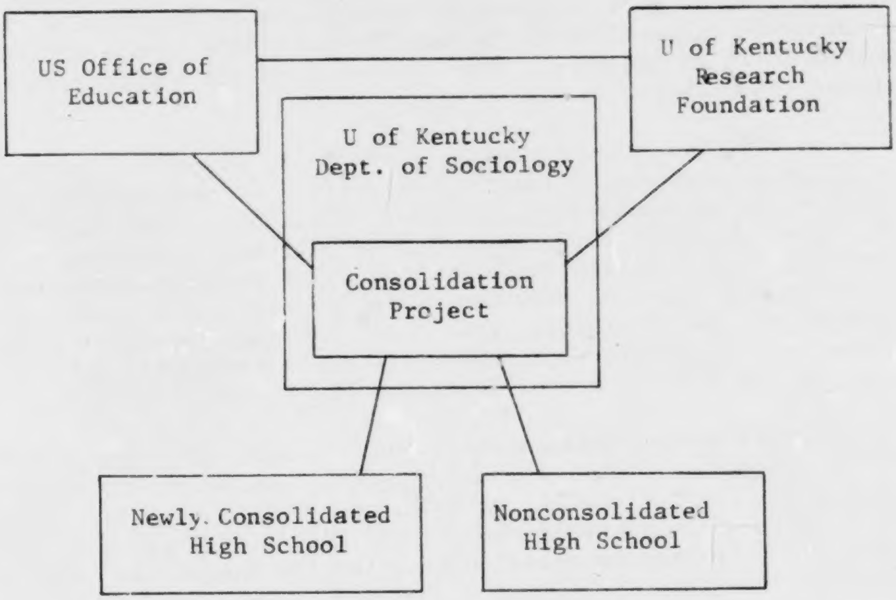
US Office of Education
U of Kentucky Research Foundation
U of Kentucky Dept. of Sociology
Consolidation Project
Newly Consolidated High School
Nonconsolidated High School

FIG. 1. Contextual map.

Physical/environmental setting. Most of the work is conducted at the University of Kentucky. However, data collection, through school records, questionnaires, and interviews, is done on location in the Appalachian counties of North Carolina.

School record data and questionnaire responses are acquired primarily from work in the schools themselves. Interviews include not only those with school officials, but also those with students. The students, or former students, were usually found in their homes, at work, or in the community, and interviews were conducted on the spot, such as on the front porch of a student's home.

There were, of course, certain difficulties that occurred. "We noticed a couple of girls, for example. When we came in, they were watching television on a screen that was virtually blank--their reception is so bad up there. They would not unglue themselves from the set to respond to us except, 'Umh, I reckon,' or 'Well, I dunno about that.' We were unable to figure out what was going on in there, which was not much, and saw automatically that there was no button to push that would bring about any response."

Major Activity Periods:

1968	1969	1970	1971	1972	1973
X[a]	XXXXXXX	XXXXXXX	XXXX	XXXXXXXX	XXXXX
SOND	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	JFMAMJJASOND	JFMAM

Listing of Project Activities:

September 1968: First ("Before") questionnaire given to classes of 1970 and 1972 in both schools.

Summer, 1969: Collection of data from school records; informal interviewing of dropouts and transfers.

Fall, 1969: Coding, punching, and preliminary analysis of questionnaire and school record data.

May 1970: Second questionnaire given to classes of 1970 and 1972 in both schools.

Summer, 1970: Collection of data from school records; informal interviewing of dropouts and transfers; informal interviews with students representing varying degrees of change in aspirations, achievement, and adjustment to consolidation.

Fall, 1970: Coding and punching of 1970 questionnaire and school record data, and preliminary analysis.

May 1971: Collection of data from school records; third questionnaire given to the class of 1972 at the nonconsolidated school.

Summer, 1971: Analysis of partial (short-run) data bearing on major research problem; preparation or presentation of findings on short-run consolidation.

May 1972: Third questionnaire given to class of 1972 in the consolidated school.

Summer, 1972: Collection of data from school records; informal interviewing with students representing varying degrees of change in aspirations, achievement, and adjustment to consolidation.

Fall, 1972 - Spring, 1973: Coding and punching of 1972 questionnaire and school record data; analysis of data bearing on long-run effects of consolidation; preparation of presentation of findings.

FIG. 2. Time line.[b]

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[a] An X indicates a month of major activity.

[b] Adopted from the "Time Schedule" of the formal proposal, pp. 20-21.

Office space is shared between the two staff members, about which the good natured, easy going Project Director informed the interviewer, "That's another rule we've broken. Graduate students aren't supposed to have offices with the staff." Nevertheless, the arrangement has worked out quite nicely, allowing them to work together as a team. This space is supplemented by use of the department's undergraduate study or research room.

Then there's the telephone. Unfortunately, it seems, the telephone is a primary source of interruption for both of them, as are occasional visits from colleagues or students. These, however, are more frequent during the school year when the project load is scheduled to be light.

When work is well under way, there is another source of occasional annoyance; having to ride down the elevator from their fifteenth floor office and running over to the computer center to check on runs or to sort cards, and then going all the way back to continue working. A nearby card sorter and a computer terminal would be valuable assets to the project, especially during analysis phases.

Chapter II: Parameters of the Project

This chapter presents the staffing pattern of the project and describes briefly the outputs being generated. It also displays the interdependent relationships of the outputs in an output map.

Project Structure

The organizational structure of the Consolidation Project is of the line type with the Project Director at the top and his graduate Research Assistant below; see Figure 3.

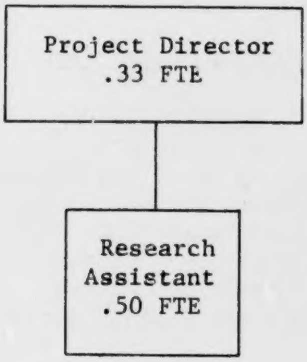

FIG. 3. Project organizational structure.

The Project Director devotes one-third of his time to this project. He accepts basic responsibility for the project and makes basic decisions of policy. He also works closely with his assistant in data collection and in making decisions regarding the analyses of the data. The half-time Research Assistant participates fully in data collection and is responsible for data management and running the analyses. Many decisions are made jointly, and interpretation of findings involves mutual discussion. Both of the project personnel were interviewed simultaneously during one full day regarding five of the 20 identified project outputs discussed below.

Outputs Generated

Index of outputs. Twenty significant, planned outcomes of targeted work activity were identified for the project. These project outputs have the structure of products, events, or conditions. Each is briefly described here.

A numeral preceded by an asterisk (*) indicates that the output was the focus of an interview for this case profile. The letters, P, E, and C, represent the relevant output structure (product, event, or condition). Each type of structure is defined as follows:

Product: A tangible or "hard" outcome of work effort that survives in a form that is transportable, such as a report.

Event: An outcome of work effort that results in the occurrence of an observable transaction, such as an interview.

Condition: An outcome of work effort that results in the creation of a desired circumstance, such as fiscal responsibility.

Below are brief descriptions of each of the 20 identified outputs of the project.

Identification Number	Output Label and Description
P-01.	Progress Reports to Sponsor. Each quarter a brief progress report is completed which contains a paragraph or two, where applicable, about each of the following categories: (a) major activities and accomplishments during this period, (b) problems, (c) significant findings, (d) dissemination activities, (e) capital equipment acquisitions, (f) data collection, (g) other activities, (h) staff utilization, and (i) future activities planned for the next reporting period.
*P-02.	Questionnaire. An instrument comprised of several batteries of questions consolidated for the Appalachian high school population to measure aspects of aspiration, achievement, and adjustment.
*E-03.	Field Interviews. Interviews with selected dropouts and transfer students, recent graduates with average grades, and recent graduates who were members of the National Honor Society. These interviews sought responses to questions regarding these students' reactions to the newly consolidated school. Interviews also included an attempt to explain why students dropped out of high school or transferred, and to see whether or not students were able in their own minds to connect such action with school consolidation.
*P-04.	School Record Data. A collection--by name--of grades, attendance, IQ, achievement test scores, and any other quantitative information contained in the folders.
P-05.	Presentation of Findings (Short-Run). A collective heading for such outputs as P-06, P-07, and P-08.

Identification Number	Output Label and Description
P-06.	Thesis. A master's thesis in the form of an article for publication presenting short-run findings of the Consolidation Project.
P-07.	Papers-Technical (Short-Run). Technical papers presenting the short-run findings of the Consolidation Project which may be published and/or presented at a conference.
P-08.	Journal Articles (Short-Run). Significant findings may be written into one or more articles for publication.
P-09.	Presentation of Findings (Final). A collective heading for such outputs as P-10, P-11, and P-12.
P-10.	Papers-Technical (Final). Technical papers presenting any significant long-run findings of the Consolidation Project which may be published and/or presented at a conference.
P-11.	Journal Articles (Final). Significant findings of the completed project may be written into one or more articles for publication.
P-12.	Final Report. The completed project will be documented and presented to the appropriate official in the U.S. Office of Education, as designated in the contract.
P-13.	Coded Data. IBM cards containing punched codes which will be used for statistical analyses via computer.
P-14.	Computer Printouts of Statistical Programs. Printouts of whatever statistical analyses are conducted on the computer. These are used for interpretation and integration into non-statistical information.
E-15.	Data Analysis and Interpretation. Running the computer programs for the designated statistical analyses and interpretation of those results for presentation of the findings.
P-16.	Method of Computing Scale Scores. A particular method developed on the project to facilitate this operation.
*C-17.	Fiscal Responsibility. Responsibility for budgeting and all other monetary aspects of the project.
*C-18.	Time Allocation. Developing short-run schedules and allocating available time to meet guidelines specified in the project proposal.

Identification Number	Output Label and Description
C-19.	Adequate Work Area. Responsibility for maintaining or acquiring adequate space for project operations.
C-20.	Adequate Equipment. Responsibility for meeting equipment needs of the project.

Output map. The outputs of the Consolidation Project described above are presented graphically in Figure 4. Tiered in the center of the figure are products or events. Their linkages indicate functional dependencies. The outputs linked to the outside brackets indicate either conditions in which the total project operates or products which are at least dependent upon the overall project to a great extent. In the case of the final report (P-12) its duplication in the figure is necessary for a greater degree of accuracy in the presentation of output linkages.

The view of the project staff regarding the primary focus of the project seems to be best represented by the presentation to the professional field of any significant findings. These findings, they are quick to point out, may or may not emerge. The dominant view is that unless one has something significant to say to the field, it is useless to waste time on any presentation. It does appear, however, that both short and long run findings will warrant presentation for public consumption.

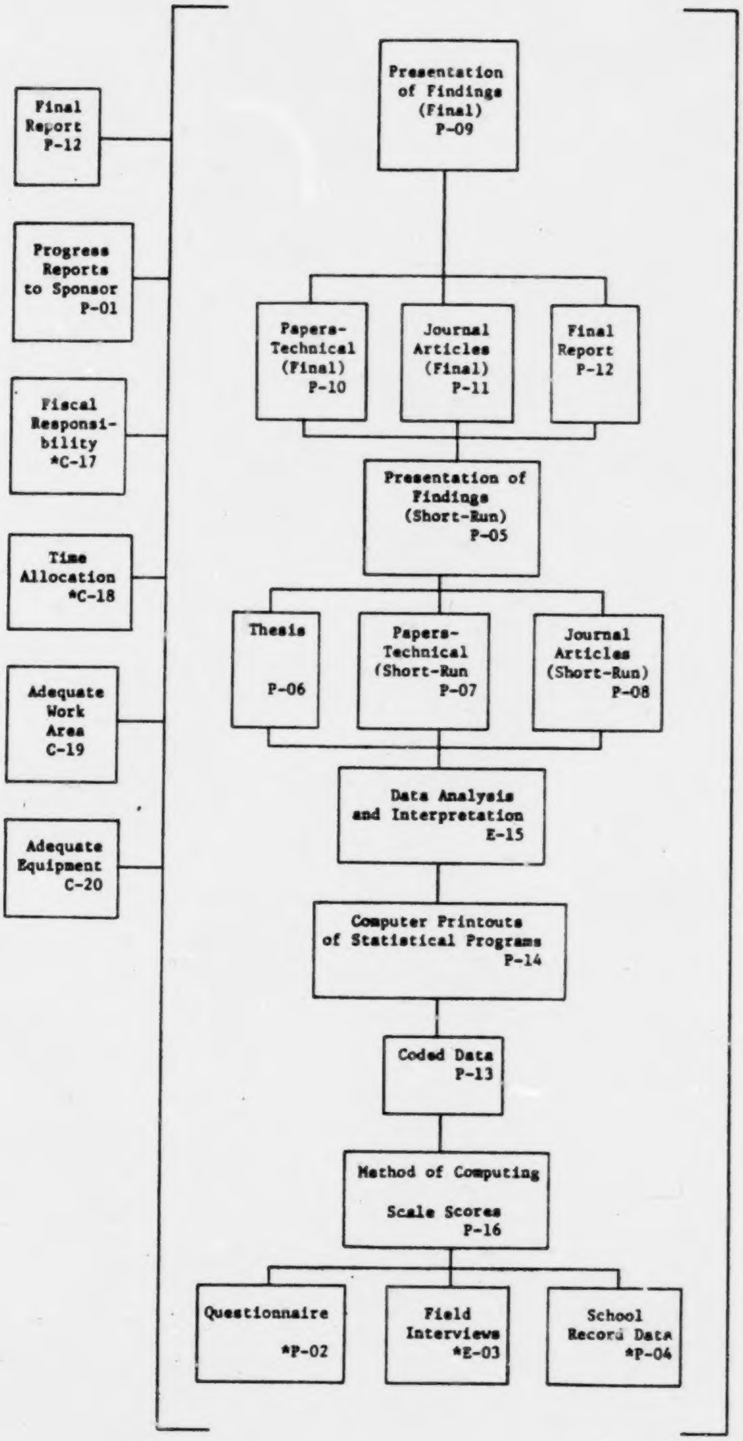
Presentation of Findings (Final) P-09
Final Report P-12
Progress Reports to Sponsor P-01
Papers-Technical (Final) P-10
Journal Articles (Final) P-11
Final Report P-12
Fiscal Responsibility *C-17
Presentation of Findings (Short-Run) P-05
Time Allocation *C-18
Thesis P-06
Papers-Technical (Short-Run P-07
Journal Articles (Short-Run) P-08
Adequate Work Area C-19
Data Analysis and Interpretation E-15
Adequate Equipment C-20
Computer Printouts of Statistical Programs P-14
Coded Data P-13
Method of Computing Scale Scores P-16
Questionnaire *P-02
Field Interviews *E-03
School Record Data *P-04

FIG. 4. Output map.

Chapter III: Summary of the Data

The data collected from the Consolidation Project are presented here both in a narrative form and in a summary form of coded statements. The coded statements can be located in the Appendix.

The following narrative is intended to give the reader a better understanding of the outputs which are summarized in the data tables to follow, as well as to provide additional insight into the project itself.

The five outputs selected for interviewing are:

1. Questionnaire (P-02)
2. School Record Data. (P-04)
3. Field Interviews. (E-03)
4. Fiscal Responsibility. (C-17)
5. Time Allocation. (C-18)

Both members of the project staff were present during the interviews, which were conducted in their office during the morning and afternoon of the first day. The interview began with a discussion to identify the project outputs which have been presented in Chapter II. From those listed in Chapter II, five were selected for more intensive analysis. These five are discussed below.

Selected Project Outputs

Questionnaire. Used periodically throughout the project, the questionnaire was the first output of the project. As a result, the story of its development also describes the beginnings of the project.

The Project Director visited the newly-consolidated school during the summer of 1968, before it was to open in the fall. His wife had attended one of the three old schools which were being consolidated, and they were both overwhelmed at the difference in the physical facilities.

At that point it occurred to him that there was a fantastic visual difference and that the facilities were going to be vastly improved. However, he wondered if it was going to have an effect on students. It would be more efficient and so on, but would it do anything to students? What possible effects could it have? What variables should be looked at?

He then started thinking about categories of variables. It seemed that from the standpoint of people who ought to be interested in schools and their effects on students that there were three variables that were fairly inclusive: (a) aspirations for further education and for jobs or career, (b) achievement -- one of the key variables in the previously cited study by James Coleman on equality of educational opportunity, and (c) students' personal reaction to the school or their adjustment to it.

The Project Director had a friend who was the Assistant Principal of the new high school. His wife had a relative who was teaching in a high school which was similar in many, if not all, respects to the old nonconsolidated schools in Avery County. That would provide a control school only 40 miles from the consolidated high school. According to the Director, "It was just a natural. A light turned on in my head and I said I'm going to do it and, whether it's funded or not, I could get something out of it that would be interesting and would give some information useful to the next people who think about consolidation."

There were two weeks in which to develop a questionnaire and one in which to have it printed. It had to be given during the fourth week in order for it to be early enough in the semester that a "before" measurement could be simulated. That was the second week of school and the students were already in the consolidated school. The Director indicated, "It's too bad it had to be then instead of the previous spring back in the old schools."

To put the questionnaire together, the Project Director first made a quick review in his own mind of things he had used before. He then reviewed several compendia of measures of different variables and dimensions, and next consulted with people in the Sociology Department at the University of Kentucky. All of the batteries used were from existing sources and put together in the two weeks available. Some were batteries used on similar populations, so no modification was necessary, and they had been used often enough before that reliability and validity were accepted as being adequate. Before they were used, however, a pretest was conducted during the same two week period.

The neighghborhood kids and their friends that were in grades 9-12 were called to participate. The instrument was administered and then discussed for wording. The intent behind several of the items was explained and the kids were asked whether it was getting at what was intended. Several changes were made based on their suggestions, and the questionnaire was readied for final copy and printing.

School record data. The next major thrust of the project came during the summer of 1970. A Research Assistant had been added to the project, and the summer was to be spent in North Carolina gathering data from school records and interviews.

When asked specifically about the school record data, the Director replied, "That is probably the biggest source of disappointment of any aspect of the study." They knew what was likely to be available from previous work with school records in the state of North Carolina and from having read various studies. However, in some cases, items they would have liked to use had been so sporadically kept that they were unusable, e.g., accounts of discipline, which had to be obtained from the Principal's own records. When there were problems, they were usually able to get a more elaborate account by talking to the Principal or Vice Principal. The attendance records used were found in the Superintendent's office.

From previously looking at the records of the new school, the Director thought that every school regularly gave achievement tests, and that these data would be available--but they were not. He found in the actual collection of these data that achievement tests were not given with any consistency. Most students had taken some tests, but not necessarily the same tests as others had taken. Many students had not taken any tests at all, and at the nonconsolidated school there were no test results available on any students.

The only item they were able to retrieve that would be comparable in both schools at more than one point in time was reading achievement, which happens to be the major achievement variable in studies like the one on which Coleman reported. Such studies have found this variable to be more highly correlated with all other aspects of achievement than any other single variable.

In light of these events, the Director and his assistant gave their own achievement tests in the nonconsolidated school. According to the Director, "It wouldn't be on these records if it hadn't been for some frantic phone calls to the publisher asking them to send a packet of tests for us to administer just before school let out for the summer."

A problem was encountered in the gathering of data on dropouts and transfers. The information was entered in the school records with a set of codes--one of three sets, that is. They were the same notation, but the notation meant different things according to which code whoever entered the data happened to be using at the time. Therefore, it was very difficult to tell by looking at a code why exactly a student had withdrawn or had transferred. It became necessary, then, to interview either a principal, vice-principal, or teacher who personally knew the student to find out why the student either had dropped out or had transferred.

Another development was the discovery of a column in the student folders called "Personal and Social Assets." The Director noted, "We thought of this as great because we can use it as a teacher's perception of the adequacy of a student's adjustment to the classroom." So the Research Assistant developed a way to compute a mean over a range of character traits and the data were recorded.

When the project staff went to the nonconsolidated school to do the same thing, since the same folder is used throughout the state, the column was there--completely blank from the ninth grade on! Nothing had been put in the folders except for attendance, IQ, and grades. Also, during some semesters it was discovered that not even grades had been entered. These were circled by the Director and his assistant, and on one of their later trips were found to have been entered.

Field interviews. Before arriving in the Appalachian counties to collect field data, interview plans called for interviews with dropouts, transfers, and representatives of average and better students who were recent graduates. The general aims were to determine their reactions to the new school and for them to explain why students dropped out or transferred. Included in the latter aim was to see if, from their point of view, there was a connection between consolidation and students dropping out or transferring.

The specific line of questioning was developed after arrival. The two researchers sat down and wrote up a list of topics to be covered around the question: "What were people's reactions?" There were two different sets of people to talk with, and two somewhat different sets of topics, one for dropouts and one for recent graduates.

Through discussions, then, the Director and his assistant began to develop probes around one of the general topics, thinking of the various aspects of that point. They would develop three or four questions to help the students to understand what was being asked, and thus enabled the students to answer appropriately to the issue that was to be determined. This process evolved by thinking of a general ice breaker, such as: "Do you remember where you first heard about consolidation...?" and followed with questions like: "Do you remember how you felt? Can you describe how you felt?" Some of these lines of questioning developed during the summer of the project's conception and were influenced by local people in the consolidated county.

Armed with probe questions and having collected the school record data, the project staff went to the Principal, the Assistant Principal, and the Guidance Counselor. These school personnel were given a list of student names and were asked to which ones the researchers should talk. That is, who would be representative and who would be articulate? It was hoped that these three administrators would not bias the sample by giving them names of people who had a particular point of view. This sample was then broadened by the project staff after they started interviewing. During interviews, they would pick up references to people that sounded like ones to whom they should speak.

With respect to the interviews themselves, the line of questioning varied from person to person, since the interview was loosely structured. As the summer progressed, additional questions were developed. For example, attitudes toward rules and strictness kept coming up. The Research Assistant began to pursue this feature until a complete line of questioning evolved in this area by the end of the summer.

With few exceptions, both of the staff members would be in on each of the interviews and both would serve as a check on the other to be sure that all areas were covered. After an interview, there was usually enough time available for them to turn on the recording tape, do some transcribing, and comment to each other about what had been said.

Fiscal responsibility. In any project there are certain conditions which must exist in order to facilitate project operations. One of the most important is monetary resources and responsibility for such monies. Thus, the Director worked up the proposal for the Consolidation Project and, having never worked before on a project budget, went to KRF where a consultant helped in working out one that was adequate for the intended project.

KRF, through the monitoring of project budgets, is also available if any budgetary problems arise during the course of the project. For example, in March 1971 the Project Director and his assistant, in discussing their plans for the summer of 1971, decided that sufficient data had been collected during the previous summers. All that was needed was to plan a trip in May of that year, prior to the end of the school year, to administer questionnaires to the nonconsolidated high school, which was to become consolidated in the following fall. They also decided to give the same instrument to the students of the consolidated school, as an additional measure of the class of 1972. The only data needed, then, was school record data, which could be recorded the following year. A special trip was made, however, to prevent loss of records which could possibly perish during the move to the new, consolidated school. In short, they decided that their time would be more productively spent at the University of Kentucky. This decision released funds about which the Project Director became quite concerned, "I don't want to see the Office of Education paying light bills for the University of Kentucky." He called KRF about this and was advised that it could best be taken care of when the funded period was concluded and the exact amount of extra funds was known.

Another event which affected fiscal responsibility was a computer run of an analysis program. The program ran for about 50 minutes with no output. A 20-minute estimate based on a computer center formula had been put in, but no maximum time. Later, it was found that the same program had given problems to other researchers as well; in fact, the computer center consultants demonstrated how inaccurate the formula for estimated time could be.

Nevertheless, that one incident used their entire computer budget. Nothing could be salvaged. "It turned out to be a rather bitter experience," according to the Research Assistant. He further indicated that, "We knew we were going to have to spend more money on computer services." Since there were extra funds due to the change in summer plans, the Director decided to try and get some of them transferred into the computer services account. The process is one of calling the contact man in KRF and requesting the change. If he feels it is a major shift in emphasis, then he will advise the Director to contact the sponsor's project monitor. However, the Director anticipated no problem since the funding is quite flexible when there is no annually renewable budget.

Time allocation. Another of the conditions necessary to the functioning of a project is adequate time allocation. The project has followed the general time line presented and discussed in Chapter I. However, specific time schedules are more a product of each of the staff members, with major dates being discussed and set. According to the Director, "We have our own idea in our heads of where we ought to be. If we're not there, then we worry about it." The work load is considered and certain times are allowed in which a great deal of work needs to be done. Summers are one of those times. The staff does not need to be concerned if there is a lag during the academic year, since this is included in the formal schedule.

They also consider the value of the work effort and the time it will take versus other efforts, e.g., coding versus analysis. In the case of writing, if these items aren't done on schedule, they may never get done. However, according to the Director, "By my reckoning, we're on schedule, almost. I'd say we're not more than two weeks behind." Although they try to be careful about deciding how much time was worth spending on side projects, such as a hand built analysis scale after the computer fiasco, lags can develop. In this case they stopped two or three times, but decided they couldn't stop there. Doing this, they lost about a week, though it was felt to be worth it. "It's very subjective. But we feel good about it right now."

Output Analysis

The tape recorded statements made during an interview around a particular project output were recapitulated under the category headings of (*a*) the *standards* by which one judges the satisfactory completion of the output, (*b*) the *tasks* required to generate an output meeting those standards, or (*c*) the *enablers* (knowledges, skills, sensitivities) which facilitate the carrying out of those tasks. The actual statements by the interviewee were then coded by a central coding team according to an open set of descriptive labels representative of the actual statements; each descriptive label representing a small class of actual statements, and being open in the sense that other statements can be added. The codes were then put into computer storage. From this data bank the tables found in this chapter were generated. These tables consist of frequency distributions of standards, tasks, and each of the three types of enablers for all of the interviewed outputs. The specific statements of the interviewees, arranged by output, are listed in the Appendix.[4]

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[4] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the *number* or *numbers* (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is only represented in the table by an abbreviated category label and its code number.

Standards held for outputs. The data collection methodology used at this site divides standards into those which are output oriented and those which are process oriented. Table 1 shows the frequency of occurrence of standards of both types as they were related to the outputs during the interview. The small number of occurrences makes interpretation difficult.

Note also that there are more occurrences in the output-oriented categories than in the process-oriented ones. This appears to be true throughout these tables, even though some have very limited frequencies. This tendency supports, despite the data limitation, the observations that the project is operations rather than managerially oriented.

Tasks pertaining to output attainment. Table 2 illustrates the heavier concern on operations. The distribution of occurrences indicates that the products and events (P-02, E-03, and P-04) apparently have higher associated frequencies of tasks than do the conditions (C-17 and C-18). There is little emphasis on particular task clusters, except noting that there are somewhat more tasks dealing with problem formulation (categories 01 and 02) and accountability (categories 06 and 22).

Enablers pertaining to output attainment. The information in Table 3 (knowledges) follows the same pattern as the previous tables, with products and events having higher frequencies than conditions, even more so than with tasks. However, the distributions across categories show no clustering tendencies.

The very low frequencies in Table 4 (skills and sensitivities), as opposed to Table 3, indicates the relative importance of "knowing things," at least to the extent that interviewees cited such enabling factors. One possible observation from Tables 3 and 4 is the higher frequency of skills and sensitivities required for field interviews, as opposed to the questionnaire which required more knowledges.

Discussion of the output data. The general relationships have already been mentioned as they occurred. The primary relationship which occurs throughout the tables is the emphasis on operations and on the products and events. For particular outputs, the emphasis on knowledges required for the questionnaire, and on skills and sensitivities required for field interviews has already been pointed out.

Beyond this general level of analysis, the reader should probe the tables to see the individual relationships of an output with standard, task, and enabler (knowledges, skills, sensitivities) categories. Then, to probe even deeper, the Appendix contains the actual statements which were coded for those categories and their associated codes.

TABLE 1

Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Outputs										
		Output Oriented (Category code no. and label for coding set J-1)							Process Oriented (Category code no. and label for coding set J-2)			
No.	Label	07 Personal satisfaction/feeling	12 Goal attainment	14 Acceptance by sponsor	22 Functions as planned	24 Terminology appropriate	30 Lack of negative feedback	Output Totals	04 Deadlines are met	07 An expected activity occurs	11 Costs consistent w/estimates	Output Totals
P-02	Questionnaire		1		1			2				
E-03	Field interview	1				1	1	3		1		1
C-17	Fiscal responsibility			1				1			1	1
C-18	Time allocation	1						1	1			1
Category Totals		2	1	1	1	1	1	7	1	1	1	3

TABLE 2

Tasks Cited for Each Output Analyzed

Project Outputs No.	Label	Clusters of Tasks (Cluster code no. and label for coding set NO) 01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	29 Facilitating relationships	30 Effecting info flow patterns	31 Diffuse info within project	33 Effecting decision mechanism	Output Totals
P-02	Questionnaire	3	2		2	1	2	1	1		2				14
E-03	Field interview		1	1	3	1	3			1	1				11
P-04	School record data	2			1	3	3		1		2				12
C-17	Fiscal responsibility							4		1		1	2	2	10
C-18	Time allocation		1					3						1	5
	Cluster Totals	5	4	1	6	5	8	8	2	2	5	1	2	3	52

TABLE 3

Enabling Knowledges Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Knowledges (Category code no. and label for coding set S-1)													
No.	Label	03 Subjects related to RDD & E	05 Project focus topics, external	06 Project variables: external	07 Project operation: general	08 Project operation: specific	09 Scheduling & organizing	11 Fiscal matters	12 Resources: personnel	13 Resources: money	14 Resources: time	22 Use of equipment/systems	23 Char's target audience	24 Process implementation (proj)	Output Totals
P-02	Questionnaire	1			1	3			1		1		2	2	11
E-03	Field interview	2		1		1						1	1		6
P-04	School record data	1	3	2											6
C-17	Fiscal responsibility							2		1					3
C-18	Time allocation			1			1				1				3
	Category Totals	4	3	4	1	4	1	2	1	1	2	1	3	2	29

TABLE 4

Enabling Skills and Sensitivities Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills and Sensitivities								
		Skills (Category code no. and label for coding set S-2)				Sensitivities (Category code no. and label for coding Set S-3)				
No.	Label	01 Teaching	11 Disciplining self	30 Adaptating to situation/ demands	Output Totals	24 Sources of error	26 Recognition of data needs	29 Willingness to experiment	38 Emerging directions	Output Totals
E-03	Field interview	1		1	2	1			1	2
P-04	School record data						1			1
C-18	Time allocation		1		1			1		1
	Category Totals	1	1	1	3	1	1	1	1	4

Chapter IV: Supplementary Data

This chapter contains information about output characteristics, the backgrounds of the staff, and the training and resources needed for carrying out the job activities within the project.

Classifications of Output Characteristics

Outputs may be categorized in terms of many variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, or production), (c) Character (knowledge, technology, implementation, or information), (d) Level (focal, component, or facilitating), and (e) Stage of completion. These five schema are represented in Table 5 for each project output identified, with frequencies summarized for each category.

In looking over the table, the reader will notice that (a) the concentration of identified outputs is in the form of products; (b) most outputs are facilitating; (c) while the project is research, there is a good infusion of the characteristics of technology, implementation, and information in significant project outputs; and (d) the project is approximately one-half completed in view of outputs as well as of time duration.

Summary of Staff Background

The project staff background may be summarized as follows:

Project Job Title:	Project Director	Research Assistant
Sex:	Male	Male
Age Category:	30-34	25-29
Highest Degree:	Doctorate	Bachelor's
Publications Category:	4-8	None
Area of Degree Specialization:	Sociology/social psychology	Sociology-psychology

In addition to these, there are a few points of interest regarding prior work experience. The Director has worked for 13 years as a professor, teaching and conducting research. The last five years also includes administrative work. He has written or helped with five proposals and has worked on three educational RDD & E projects. Presently he is working on only one such project.

His assistant, on the other hand, spent a few years as a military intelligence analyst and one year as an insurance background investigator. Presently he is working on only one educational RDD & E project.

TABLE 5

Classifications of Output Characteristics

		Output Characteristics[a]																		
	Project Outputs	Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Progress Reports to USOE	X				X		X						X						X
*P-02	Questionnaire	X					X			X		X				X				
*E-03	Field Interviews		X				X			X										X
*P-04	School Record Data	X					X			X				X						X
P-05	Presentation of Findings (Short-Run)	X					X		X		X								X	
P-06	Thesis	X					X		X		X								X	
P-07	Papers-Technical (Short-Run)	X					X		X			X							X	
P-08	Journal Articles (Short-Run)	X				X				X			X						X	
P-09	Presentation of Findings (Final)	X					X	X			X								X	
P-10	Papers-Technical (Final)	X					X		X			X							X	
P-11	Journal Articles (Final)	X				X				X			X						X	
P-12	Final Report	X				X		X					X						X	
P-13	Coded Data	X					X			X				X				X		
P-14	Computer Printouts of Statistical Programs	X					X			X				X				X		
E-15	Data Analysis and Interpretation		X				X			X										X
P-16	Method of Computing Scale Scores	X				X				X		X				X				
*C-17	Fiscal Responsibility			X		X			X											X
*P-18	Time Allocation (Documented)	X				X				X	X									X
C-19	Adequate Work Area			X		X				X						X				
C-20	Adequate Equipment			X		X				X							X			
Classification Frequencies[b]		15	2	3	0	9	11	3	4	13	4	4	3	4	0	3	1	2	8	6

[a] The specific output characteristics are identified as follows:

Structure	Function	Level	Character	Completion Stage
p - product	ps - policy setting	f_1 - focal	k - knowledge	1 - completed over one year ago
e - event	m - management	c - component	t - technology	2 - completed 3 to 12 months ago
c - condition	p - production	f_2 - facilitating	i_1 - implementation	3 - completed within last 3 months
			i_2 - information	4 - currently in progress
				5 - not yet underway
				6 - on going (continuous)

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

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* Interviewed

Both members of the staff list undergraduate and graduate experience as their most relevant professional training. Specific courses listed were methodology and psychology courses in observation and statistics.

The Director listed previous research as his most relevant professional work experience. His assistant, of course, has not had relevant professional research experience prior to this project.

Summary of Interviewee Responses

Present position requirements. Each of the staff members listed requirements for their respective positions on the project as follows:

Professional staff:

1. Doctoral-level or equivalent training in research design, data collection, data analysis, statistics, computer programming, writing, and management.
2. Two years of administrative activities.
3. Two years of management activities.

Support staff:

1. Training in interviewing practices, elementary statistics, research methodology, and use of computer programs.
2. Skill to quickly recognize problem areas and ability to find someone or some other source for the solution.
3. One year in educational research, development, diffusion, or evaluation.
4. Bachelor's degree level or training.
5. One-the-job training.

Support resources. The support services used by the personnel in this project were:

Printing.
Other reproduction services.
Typing.
Purchase of supplies and equipment.
Subscriptions to technical and professional journals/periodicals.
Computer analysis services. (data processing)
Computer program writing.
Statistical consultation.
Budgetary and other fiscal accounting.

The support equipment used was as follows:

Dictating equipment.
Desk calculator.
Key-punch machine.
Data-card sorter.
Photographic equipment.
Reproducer.
Tape recorder.
Computer.

Project management. Project management includes the following:

1. Informal time lines.
2. General statements of functional goals to serve as a basis for individual work assignments or responsibilities.
3. Occasional reviews of effort and general discussion of remaining work goals.
4. Close periodic working contact.

The staff structure consists of a faculty-student team which requires only minimal coordination. The project also requires some coordination with the two high schools.

General activity significance. From questionnaire data, ratings of the significance of the contribution to the project of their general activities were provided by each staff member. These general ratings are recorded below, where 0 indicates "not a part of my project activity," 1 indicates a "minor part," 4 a "substantial part," and 7 a "most significant part of my work."

		Project Director	Research Assistant
1.	Reading.	2	4
2.	Designing or planning procedural activities	7	1
3.	Developing research tools or other data-gathering instruments.	7	2
4.	Collecting project data.	4	3
5.	Analyzing data	2	5
6.	Writing.	4	5
7.	Supervising and coordinating actions of others, or of material resources.	4	0
8.	Teaching or training.	3	0
9.	Meeting, consulting or advising.	0	1
10.	Other (data preparation)	0	6

Chapter V: Project Dynamics

The Consolidation Project is probably typical of many small research projects run by a professor in an academic environment. A very informal atmosphere prevails and the project staff members have a very close working relationship.

Underlying the project itself is the foundation of university life. There are the professor/administrator and graduate student roles with their own influences and demands. Thus, unlike a full-time research activity, this project is conducted in addition to other work loads.

These loads fluctuate and affect the project. As previously mentioned, summers are the most productive part of the project and are the periods with the least interruptions. The project basically follows the time table presented in the proposal, of which an updated version appears in Chapter I. Within this context, the project works on an informal and subjective level.

Both of the staff members claim to be compulsive. When their interest is high or they feel a need to get some work effort finished, then they are likely to spend long hours working toward completion. This may include weekends or late night sessions. Although they do set tentative deadlines, it is no catastrophe if it does not get done.

Both are good natured and the interview was speckled with laughter. At the same time there is a sincere concern for the problems that invariably occur. They seem to enjoy discussing the project and describing their experiences and feelings.

Beyond the good-natured informality and constraints of report writing, one other very important aspect of the project emerges. This is the concern for the value of the project itself and for honesty in presenting the research results to others. They feel that unless the results have real value for the academic community, there is no point in spending time and energy on trying to get them published. They also feel that they must exercise all due caution in interpreting findings, so as not to deceive either themselves or others. Perhaps the biggest factor influencing the project is, as one of them said, "Our own interest is the outcome."

Chapter VI: Implications for Training

The Consolidation Project was run on a very personal and subjective level which prompted some discussion about how little training was really necessary if the proper attitude prevailed. However, when it came right down to it, there were a number of training suggestions which were felt to be pertinent. They varied somewhat between the two staff members, primarily in degree of knowledge required, since there is more required for the design and management of the project than for actual operations.

The differences, then, evidenced themselves as a doctoral level of competence as opposed to a bachelor's. There was a suggestion for some management training or experience, although this was not felt to be essential.

Perhaps one of the most valuable suggestions was one of experience in graduate school doing guided research as a form of on-the-job training. For the Research Assistant, who was working on his master's degree, the project was part of his education more than it was a job.

The suggested areas for training were:

1. Questionnaire construction.
2. Interviewing.
3. Coding.
4. Data storage.
5. Computer programming. (probably FORTRAN)
6. Data Analysis.
    - (a) Scale construction
    - (b) Contingency analysis.
    - (c) Regression analysis.
    - (d) Correlation analysis.
    - (e) Analysis of variance.
    - (f) Path analysis.
    - (g) Factor analysis.
    - (h) Guttman scaling.
7. A good grounding in social and psychological theory.
8. Research design and methodology.
9. Writing.

Two general skills were also pointed out. The first was the ability to ask creative questions and to design strategies for answering them; which, in turn, related to knowledge of research design and methodology. The other was the ability to recognize problem areas quickly and to be able to find some source for their solution; which, it was indicated, was part of the learning process of a graduate student or the result of being in an academic environment.

As an example, the Research Assistant indicated, "If I have doubts, I usually go to an expert..., such as the consultant at the computer center." The Director noted, "To some extent the formal training is just an excuse to be here, for everybody to be working on things more or less similar so they'll be available for consultation."

Among the data presented in Chapter III were a series of enablers, i.e., knowledges, skills, and sensitivities, which relate to those outputs of the project around which interviews were conducted. Most of these relate to the particular project and its design. It would be unnecessary duplication to reproduce them here. However, a brief review of these by the reader could be a helpful addition to the information just discussed. A couple of points might be made with regard to these items. First, there is the assertion of a need for knowledge about the particular area of sociology-psychology which is applicable to this study. Secondly, according to the Director, there is a need for "a sensitivity to a wide range of things that can be used as evidence about a variable," as evidenced in a book by Webb, et al., Unobtrusive Measures.[5] "It's inspiring and clever." And finally, one must know where to find information, such as applicable batteries of questions for compiling a questionnaire.

In conclusion, it appears that the general training implications offered by this particular analysis are (a) a general knowledge of the project field, with an area of some additional competence; (b) a background in research design and methodology, including an adequate grounding in statistical techniques and their interpretation; and (c) practical experience in working on research projects as a graduate student.

---

[5] Webb, E. J., et al. Unobtrusive measures: Nonreactive research in the social sciences. Chicago: Rand McNally, 1966.

Appendix

Appendix: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. These statements were extracted from discussions with interviewees, and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS:

Code J: Structure of Standards.

J-1 Standards against which outputs are judged. (output oriented)

J-2 Standards against which processes and/or operations are judged. (process oriented)

Code LM: Primary Categories of Standards.

TASKS:

Code NO: Clusters of Tasks.

ENABLERS:

Code S: Structure of Enablers.

S-1 Knowledge.

S-2 Skill or ability to perform.

S-3 Sensitivity or awareness.

Code UV: Primary Categories of Enablers (knowledges, skills, or sensitivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the five analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

P-02: Questionnaire

STANDARDS:

J	LM	
1	12	Batteries selected have been used enough that reliability and validity are accepted as adequate.
1	22	The instrument was pretested with neighborhood children.

TASKS:

NO	
02	Consider what variables might be considered in evaluating effects of consolidation on students.
01	Decide on three that seemed fairly inclusive: (a) aspirations, (b) achievement, (c) adjustment.
01	Made a quick review in own mind of batteries used before for similar measures.
01	Research several compendia of measures of different variables and dimensions.
02	Consulted with people in own department.
04	Used batteries from existing sources and put them together.
29	Discussed idea with high school principal, of one test site, who made suggestions for a type of questions.
04	Develop a line of questions along line suggested by high school principal.
29	Check the rough draft of questions with assistant principal before pretesting.
23	Call neighborhood kids and their friends to help as subjects for pretest.
05	Administer pretest to neighborhood high school sample.
06	Discuss areas of difficulty and inadequacy for the defined purpose.
06	Modified some parts according to suggestions of pretest sample.
22	Have the test typed and reproduced.

ENABLERS:

S	UV	
1	14	Know time constraints to develop questionnaire.
1	08	Know what is to be measured.
1	03	Know some batteries of items which were applicable.
1	23	Know population to be addressed and characteristics.
1	24	Know how long test would take, from pretest.
1	23	Know areas of sensitivity of the population.
1	24	Know what sort of analytical devices would be used on data--constructed scales and scale scores, mid-cross program, path analysis.

1	08	Know how one is going to use the information.
1	07	Know data must be codable, punchable, computable.
1	08	Know instrument data that is to be supplemented by openended interview so that it is not necessary to ask openended questions in instrument.
1	12	Know where to locate a secretary capable of typing draft questionnaires.

E-03: Field Interviews

STANDARDS:

J	LM	
2	07	Talk to at least three people before selecting sample subjects.
1	24	Questions phrased so subjects would understand what is being asked and are able to give an answer that would be appropriate to what is sought.
1	07	Feel good about how the interview went.
1	30	Few comments from colleagues (regarding mistakes).

TASKS:

NO	
03	Sample a variety of students: dropouts, transfers, average and better students.
04	Write down a list of topics to be covered by interview.
29	Discuss possible subjects (students) with principal, vice-principal, and guidance counselor after having checked records and names.
06	Expand sample interviews progress.
02	Discuss basic question and topics for discussion.
04	Develop questions about various aspects of each topic.
04	Construct general opening questions.
06	Add questions in topics that come up in interviews, e.g., attitude toward conduct code.
05	Conduct interviews wherever able to find the selected interviewees.
24	Play back tapes and discuss with colleague how the interview had gone.
06	Check each other (Project Director and Research Assistant) during interviewing to be sure all topics were covered.

ENABLERS:

S	UV	
1	08	Know general aim of interview.
3	24	Sensitive to whether leading the interviewee.
1	06	Familiar with Appalachian people.
1	03	Familiar with interviewing.
3	38	Sensitive to how the interview is going.
1	03	Know what key to play to get respondent to respond with the coordinate one wants.
1	23	Know the person's background.
2	30	Able to respond to a hundred questions simultaneously.
1	22	Know how to use tape recorder.
2	01	Able to train self for whatever is needed.

P-04: School Record Data

STANDARDS:

J LM

No information collected under this heading.

TASKS:

NO	
01	Look at student folders to copy school record data items.
06	Notice that reading achievement was not always the same test, and not always given at same time.
29	Talk to principal or vice-principal to get elaboration on some incomplete items--such as discipline.
05	Collect attendance records from superintendent's office.
23	Make some phone calls to publisher for packet of achievement tests.
05	Administer reading achievement tests to control high school.
05	Interview someone who knew students personally to find out actual reason for transfer or dropout.
04	Figure out a way to code a column labeled personal and social assets at consolidated school.
06	Determine missing grades data for control school for some students.
06	Note missing grades with red circle for recovery later.
01	Develop a list of items to be collected from school record data.
29	Talk to vice-principal regarding availability of school record data.

ENABLERS:

S	UV	
1	05	Know what data were likely to be available in the field setting.
1	05	Know what kind of data were to be kept in the new consolidated school.
1	06	Know that reading achievement is the major variable in studies like the Coleman report.
1	03	Know what measures would be pretty good indicators of the desired variables.
1	05	Familiar with a lot of other studies using school record data.
1	06	Familiar with statistical information from State Department of Public Instruction and information extracted from school records in the state.
3	26	Sensitive to a wide range of things that can be used as evidence about a variable.

C-17: Fiscal Responsibility

STANDARDS:

J	LM	
2	11	Meet the total budgeted allocations with actual total expenditures.
1	14	Approval of fiscal handling by project monitors.

TASKS:

NO	
33	Decide that project didn't need summer data collection session as had sufficient data from previous summer.
24	Consider transferring unused summer funds into computer cost account.
22	Call contact man at Research Foundation--campus research committee--to request the transfer of funds.
33	Decide whether request is a shift in emphasis for the project.
22	If shift of emphasis, call contact man in sponsoring agency to request transfer in allocation of funds.
30	If approved, inform director that transfer of funds is acceptable.

22	Note transfer of funds on budget for fiscal year.
31	Call contact man regarding concern for unused funds.
22	Inform KRF contact man of priorities recommended for those unused funds.
31	Explain that first priority--to return funds--is acceptable, but not to be concerned until completion of the project.

ENABLERS:

S	UV	
1	11	Know procedure for clearing budget changes.
1	11	Know when one has a budget problem.
1	13	Know own budget in order to allocate and account for expenditures.

C-18: Time Allocation

STANDARDS:

J	LM	
1	02	Feel good about progress.
2	04	Project completed on time.

TASKS:

NO	
22	Follow general time guidelines as found in the proposal.
02	Discuss project progress to allocate time, i.e., set deadlines (flexible) for tasks within time blocks on time guideline.
22	Decide own schedule for work, depending on outside work, current demands, interest, etc.
33	Decide on whether to introduce unplanned activities into work load based on time/value considerations.
22	Evaluate project progress and expectations when completing quarterly progress report.

ENABLERS:

S	UV	
1	09	Know the value of certain work efforts as proposed to the estimated time for completion.
1	06	Know demands of nonproject work load, outside activities, etc.
1	14	Know when there is an opportunity to get a great deal done on the project.
3	20	Have conscience regarding obligation to the project.
2	11	Be compulsive so can get large segments of work done at a time.

CASE PROFILE NO. 3

Written by
Diane G. Jones

PROJECT TITLE: An Analysis of the Stability and Instability of Student Growth

(THE STABILITY STUDY)

AN EDUCATIONAL RESEARCH PROJECT CONCERNED WITH: Describing the academic growth of a nationwide sample of students, grades 5-12, and investigating the stability and instability in growth relative to major subcategories of the total sample.

A PROJECT OF: Educational Testing Service
Princeton, New Jersey 08540

This profile has been prepared according to

PROFILE FORMAT No. 2

Three profile formats are represented in this volume.
The reader should refer to this number when making
use of the reader's GUIDE to the profiles.

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Chapter I: Overview

The overview presents a brief synopsis of the Stability Study as an introduction. This is elaborated by a discussion of the objectives, rationale, and significance of the project and the context in which the project operates.

Synopsis of the Project

Title: An Analysis of the Stability and Instability of Student Growth.

Responsible Institution: Educational Testing Service.

Funding Sources:
1. U.S. Office of Education, Division of Comprehensive and Vocational Education Research.
2. Educational Testing Service.

Funding Duration: February 1, 1970 to May 1, 1971. (15 months)

Observation Date: March 1971.

Present Stage of Study: Final third of the project.

RDD&E Focus of Project: Educational research.

Expected Outcome: New knowledge on the analysis and interpretation of student data relative to academic growth.

Level of Funding and Duration: Low-Medium. (level 2 of 7 levels)

Agency Setting: Private corporation.

Staff Summary (Current):	Professional	Support
Total Full Time Equivalency (in man years):	0.65	0.15
Number of Personnel Assigned:	3	1
Professional Specialities of Staff (interviewees only):	psychology, systems analysis, quantitative analysis.	

Objectives, Rationale, and Significance of the Project

The primary goal of the Stability Study is to describe the academic growth or development of a nationwide sample of students. To achieve this goal, data analysis has focused primarily upon academic growth as measured by objective tests of achievement and ability. Currently, there is very little comparative information relative to academic growth on a nationwide basis and it is felt that the forthcoming information will have great utility as baseline data.

A secondary effort is to investigate the stability and instability in academic growth relative to major subcategories of the total sample. One of the outcomes of this study is to be a set of two theory papers which will focus upon defining stability in terms of student academic growth. This activity and resulting outputs are not formal, contracted components of the project. However, the Project Director emphasized the necessity/importance of this activity if the study was to have any major impact in the area of student academic growth.

Data for the above description and investigation were obtained from a study[1] completed previously by Educational Testing Service (ETS) in which longitudinal data had been collected over a period of eight years. Students had been initially tested in grades 5, 7, 9, and 11. Following the initial test battery administration, the same students were tested every two years until they graduated. Data were collected on the achievement, attitudes, opinions, nonschool activities, teachers, schools, and communities of 45,000 students in the United States. The test battery included two aptitude tests (SCAT), six achievement tests (STEP), a Test of General Information (TGI), and a 15-page Biographical and Experience Questionnaire (BEQ). Additional descriptive information was provided by the schools. The sample of 45,000 students included major subcategories of black and white, rich and poor, college bound and job bound, and high achieving and low achieving from school systems of varying sizes and in varying geographical locations throughout the United States.

The prime thrust of this present project (Stability Study) is to analyze the bank of data collected during the Growth Study. The analysis is primarily focused on achievement in science, social studies, mathematics, reading, writing, and listening. Examination of sample subcategories includes curriculum, sex, age, race, socio-economic status (SES), region of country in which the student's state is located, size of high school graduating class, and size of city where student lives. Separately, it also includes those attending a vocational school and the family pressure, a phrase which refers to the extent to which the home environment is conducive to academic achievement.

Statistical treatments on the variables include mean, range, standard deviation, variance, percentiles, and tests of significance. For some of the subcategories, such as SES, items have been selected from one of the instruments used in the Growth Study and grouped into a tentative scale to measure the construct (subcategory) more reliably than perhaps would a single item. Items have then been examined by means of factor analyses to determine the extent to which items had a common construct and whether or not the items were measuring a single construct or "n" constructs.

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[1] Subsequently referred to as the Growth Study.

The significance of the project is in: (*a*) its attempt to provide a generalizable description, from an analysis of baseline performance data, relative to the pattern of longitudinal growth in a nationwide sample of students throughout the U.S., (*b*) its attempt to specify the significant groupings or subcategories within that descriptive information, and (*c*) its attempt to integrate the results of the data analysis with a substantive theory of stability and instability in terms of student academic growth.

Context in Which the Project Operates

Relationship to other agencies. The Stability Study resides in the Individual Development Research group, Developmental Research Division of ETS. The Director of that group is also directing the project and maintains periodic communication with the primary funding agency. The two other project staff members are from another division within ETS. Figure 1 illustrates the context in which the project operates.

Relationship to other efforts of an overall program. The project described herein is one of a series that ETS has been involved in on a long term basis. This project involves the analysis and comprehensive documentation and description of data from the Growth Study, in which longitudinal data were collected over an eight year period on the achievements, attitudes, opinions, nonschool activities, teachers, schools, and communities of 45,000 U.S. students. It is anticipated that these data and the resulting information will serve as a basis to support future studies relative to patterns and theories of stability and academic growth among student populations.

Supporting and technological resources. Technical skills necessary to the project are provided by members of the project staff and advisors within ETS (the parent agency). These skills are primarily in the areas of statistics and measurement, computer programming, and data processing.

Time lines. With the emphasis on quality as opposed to arbitrary adherence to time lines, Figure 2 represents the major activities and flow of work within this project and is a schematic of its outputs and activities. Looking at the figure from bottom to top represents the sequence of outputs and activities from the beginning of the project to its termination. The dotted (arrowed) line in the central area of the schematic represents a recycling of activities based upon components of the interpretive report: Are there different groupings of variables that might be examined? What statistical treatments might be applied to the groupings or subcategories? The horizontal dotted line represents

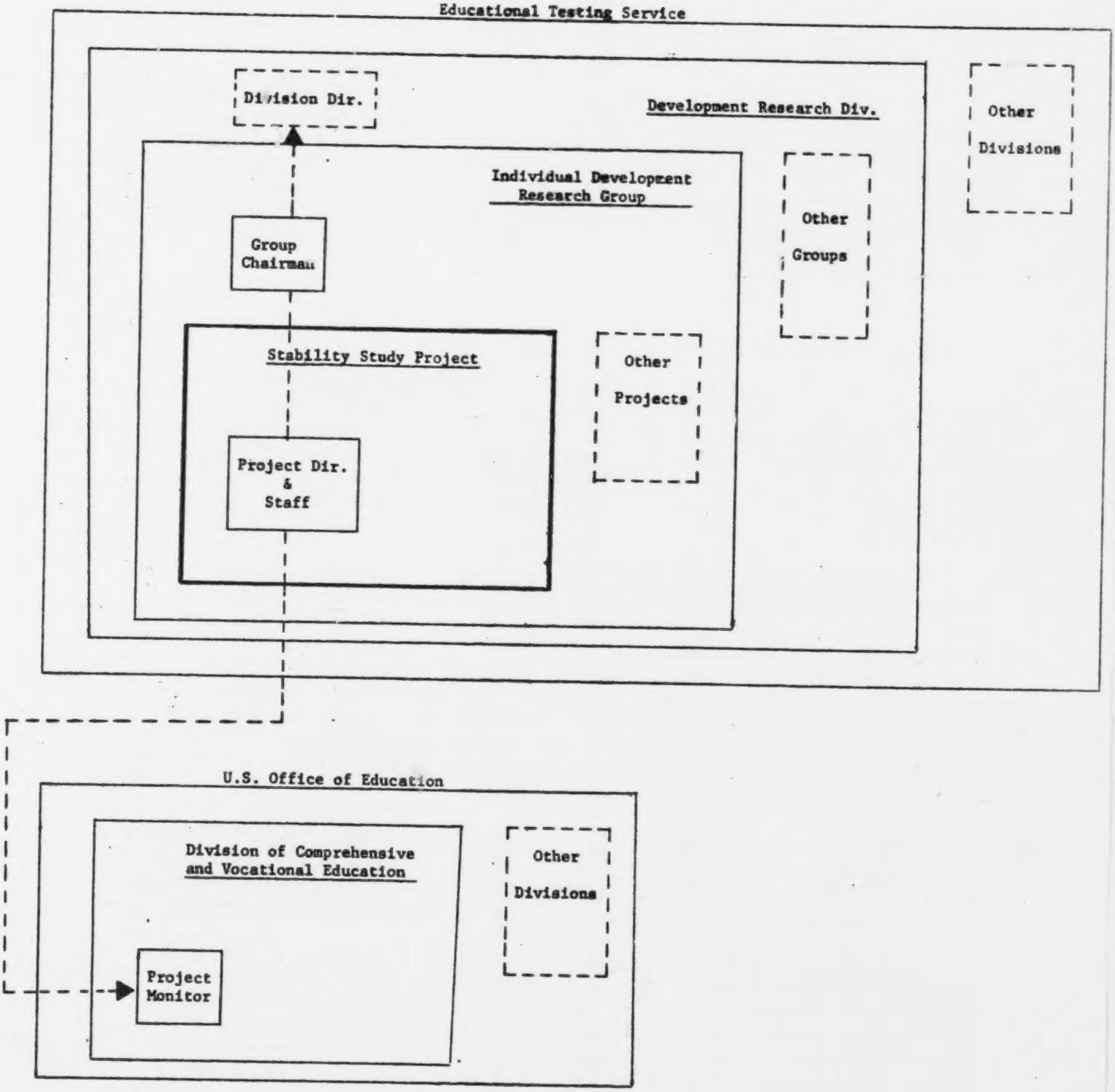
Educational Testing Service
Division Dir.
Development Research Div.
Other Divisions
Individual Development Research Group
Group Chairman
Other Groups
Stability Study Project
Other Projects
Project Dir. & Staff
U.S. Office of Education
Division of Comprehensive and Vocational Education
Other Divisions
Project Monitor

FIG. 1. Contextual map.

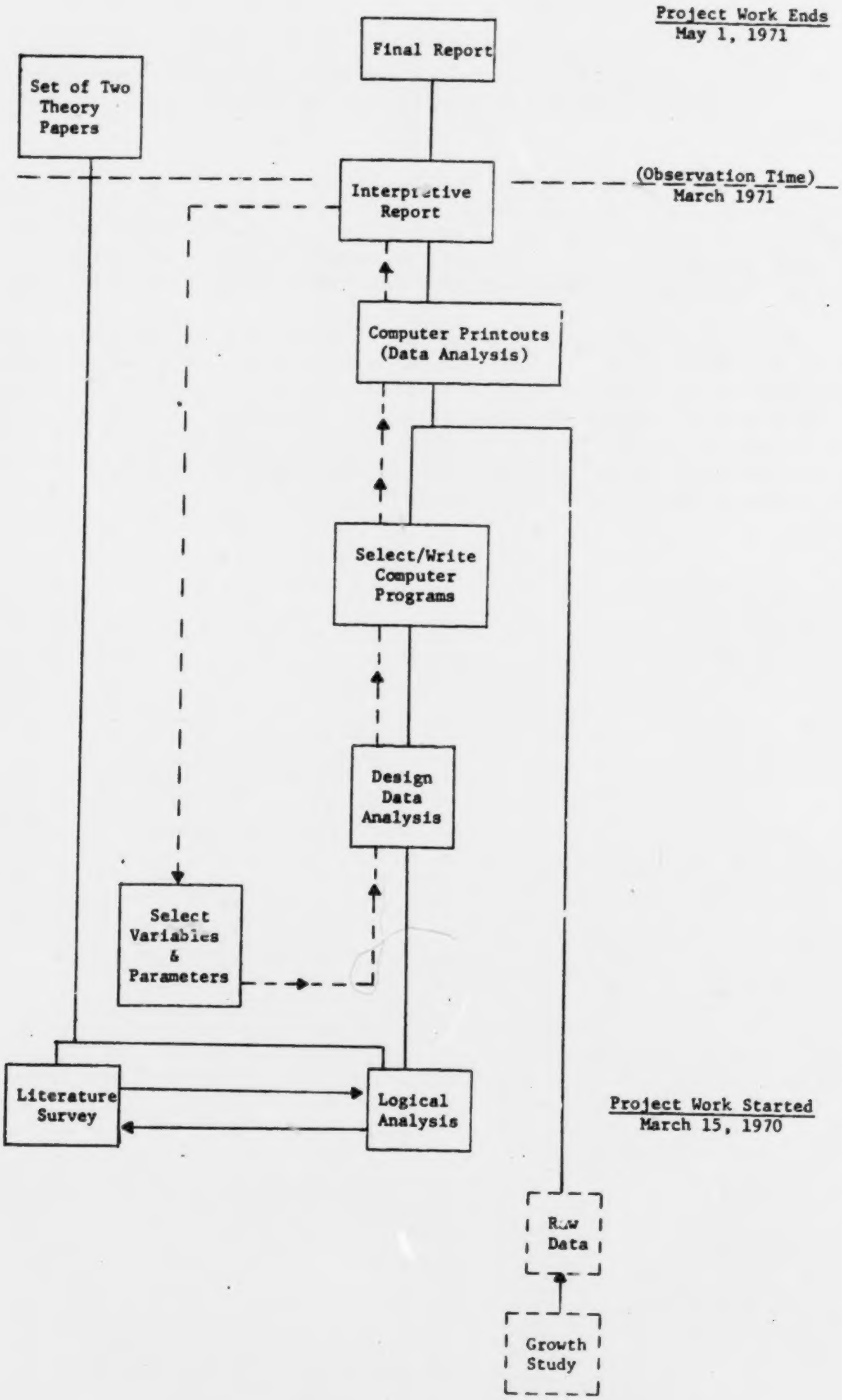
Project Work Ends
May 1, 1971
Final Report
Set of Two Theory Papers
Interpretive Report
(Observation Time)
March 1971
Computer Printouts (Data Analysis)
Select/Write Computer Programs
Design Data Analysis
Select Variables & Parameters
Literature Survey
Logical Analysis
Project Work Started
March 15, 1970
Raw Data
Growth Study

FIG. 2. Project work flow and time chart.

the entrance of the interviewing team into this project for data gathering purposes. Quarterly progress reports relative to the project's status are issued from the office of the Project Director to the primary sponsor.

Duration of this project was projected in the proposal as a 12 month effort starting February 1, 1970 and ending February 1, 1971. However, due to extenuating circumstances, project activities were delayed for approximately two months midway through the project. Consequently, the termination date was moved ahead to May 1, 1971.

Physical/environmental setting. The offices of the parent agency (ETS) are located in New Jersey, and are situated in a campus-like arrangement on a partly-wooded tract of land. Their facilities include a library and a cafeteria located on the grounds. The project staff are housed in two different buildings. This appears to be inconvenient to the project, as special meeting arrangements have to be made to get the three primary staff members together.

Chapter II: Parameters of the Project

This chapter contains information about the organizational structure of the Stability Study, its staffing patterns, and the roles and functions served by its personnel. It also provides descriptions of the outputs identified in the study, and shows the dependent relationship of these outputs in an output map.

Project Structure

Staff structure. The Stability Study is one of several projects that are ongoing within the Individual Development Research Group at ETS. The organizational structure of the project itself is represented in Figure 3.

Although the Project Director, the Co-Investigator, and the Senior Research Assistant have somewhat differing areas of responsibility, they interact closely with one another and all are kept informed of the progress of various activities within the project by means of periodic informal meetings.

Advisors from within the parent agency who have expertise in particular areas are occasionally called upon to render advice or to help in making decisions relative to a particular aspect of the project's activities. Agency support also includes technical and clerical staff, who are called upon according to the dictates of project activities.

The actual time involvement of the three primary staff members has been varied. Over the past 12 months the Project Director has devoted approximately 17% of his time to the project, the Co-Investigator 13%, and the Senior Research Assistant about 35%. The structure of the staff (see Figure 3) has remained constant throughout the life of the project.

Project roster. The roster of project staff involved in this study, their major responsibilities, and the production and management outcomes interviewed around are represented in Figure 4.

Outputs Generated

The outputs identified in this study are sorted into two categories: production oriented and management oriented. A production-oriented outcome is defined as a tangible or "hard" result of work efforts, surviving in the form of a transportable product. A mangement-oriented outcome is defined as a tangible result related directly to management operations.

The production-oriented outcomes of this project can be grouped into two general categories: descriptive and interpretive. The descriptive outputs (computer printouts; literature survey) serve as a basis for the interpretive outputs (theory papers; interpretive report). From the literature survey and the descriptive outputs based on the raw data, a new conceptual scheme concerning academic stability and growth will be developed.

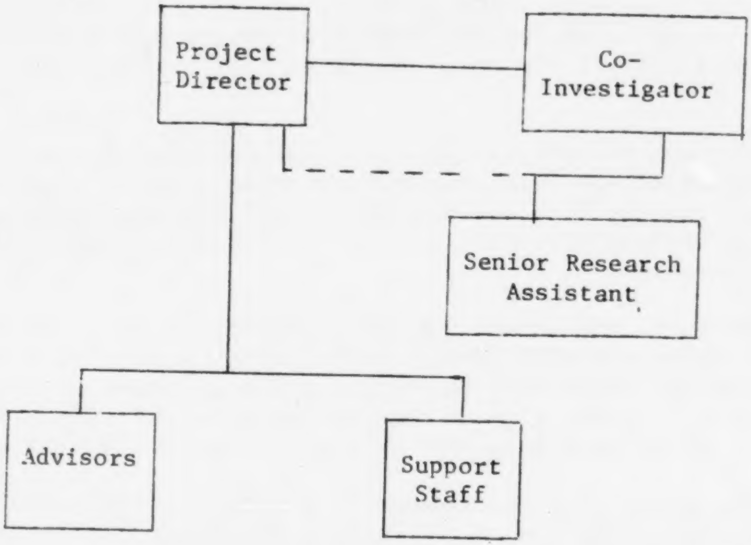
Project Director
Co-Investigator
Senior Research Assistant
Advisors
Support Staff

FIG. 3. Project organizational structure.

Prime Contractor Personnel	Products and Management Outcomes Interviewed Around Per Interviewee
Project Director: Responsible for the initiation, conduct, and outcomes of the Stability Study. Approximate FTE[a] devoted to the project is 17%.	M-14. Schedule M-13. Financial Report P-10. Theory Papers P-01. Published Report (Book)
Co-Investigator: Responsible for monitoring the statistical and data analysis. FTE assignment is approximately 13%.	P-06. Design of Statistical Treatments P-02. Description of Analysis Techniques
Senior Research Assistant: Responsible for selecting and developing computer programs and processing the data. FTE assignment is approximately 35%.	P-05. Computer Programs

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[a] Full Time Equivalency

FIG. 4. Project roster of staff. (Includes an indication of the focus of associated interviews and the major project responsibilities of each staff member.)

Index of outputs. The following is an annotated list of the outputs identified within this study from the orginal project proposal, the project reports, and the interviews. These are graphically illustrated in Figure 5. Each output has been arbitrarily assigned an identification number consisting of two parts: (a) a letter which permits easy identification of the output as a tangible product (P) or a management outcome (M), (b) a sequence number for all outputs irrespective of P or M. The numerical designation of the outputs appears in various tables and charts permitting one to examine a description and match the data from other tables to it.

P-01. Published Report (Book). In addition to inclusions relative to procedures and strategies utilized in this study, the final report will be published in hard-bound copy to incorporate all of the descriptive findings with an interpretive examination of the data output relative to the academic growth of a sample of U.S. students.

P-02. Description of Analysis Techniques. A narrative report of statistical treatments employed in the processing of the data.

P-03. Interpretive Report. The interpretation of the descriptive outputs (computer printouts) as related to specified postulates or hypotheses concerning academic growth.

P-04. Computer Printouts. A series of computer printed sheets describing the parameters of academic growth for total and major subcategories of data from a nationwide sample of U.S. students.

P-05. Computer Programs. A core of basic routines developed at ETS which served as a nucleus for processing the data in terms of the statistical treatments to be applied to the data.

P-06. Design of Statistical Treatments. A description of statistical methods to be applied to the raw data in order to generate parameters for studying the variable relationships addressed in the project.

P-07. Statement of Variables and Parameters. Selected item groupings around which analyses would be performed.

P-08. Literature Survey. A review of the literature and past efforts relative to stability and instability of academic growth.

P-09. Raw Data. Longitudinal data collected during the Growth Study which served as a basis for the Stability Study.

P-10. Theory Papers. These discuss the general concepts of stability and alternative methods of defining stability.

P-11. Quarterly Progress Reports. Brief reports summarizing the progress and status of the project.

M-12. Budget. An itemized statement of expected project costs.

M-13. Financial Report. A biweekly report which indicates, by specified category, the beginning budgeted balance, cumulative expenditures to date, expenditures of the last two weeks, and the status of the balance to date (whether it is over or under the beginning budgeted amount).

M-14. Schedule. A time-based plan for the execution and completion of project activities and outputs.

Output map. Figure 5 is a graphic illustration of both production-oriented outcomes and management-oriented outcomes. The figure attempts to represent the dependent relationship of one outcome to another. For example, the "Design of Statistical Treatments" was dependent upon the generation or development of the "Statement of Variables and Parameters."

It should be noted that this schematic does not necessarily represent output development in relation to time. It only represents the dependent relationship between one output and another. Management outcomes identified on this schematic have an influential relationship over all the products identified in Figure 5.

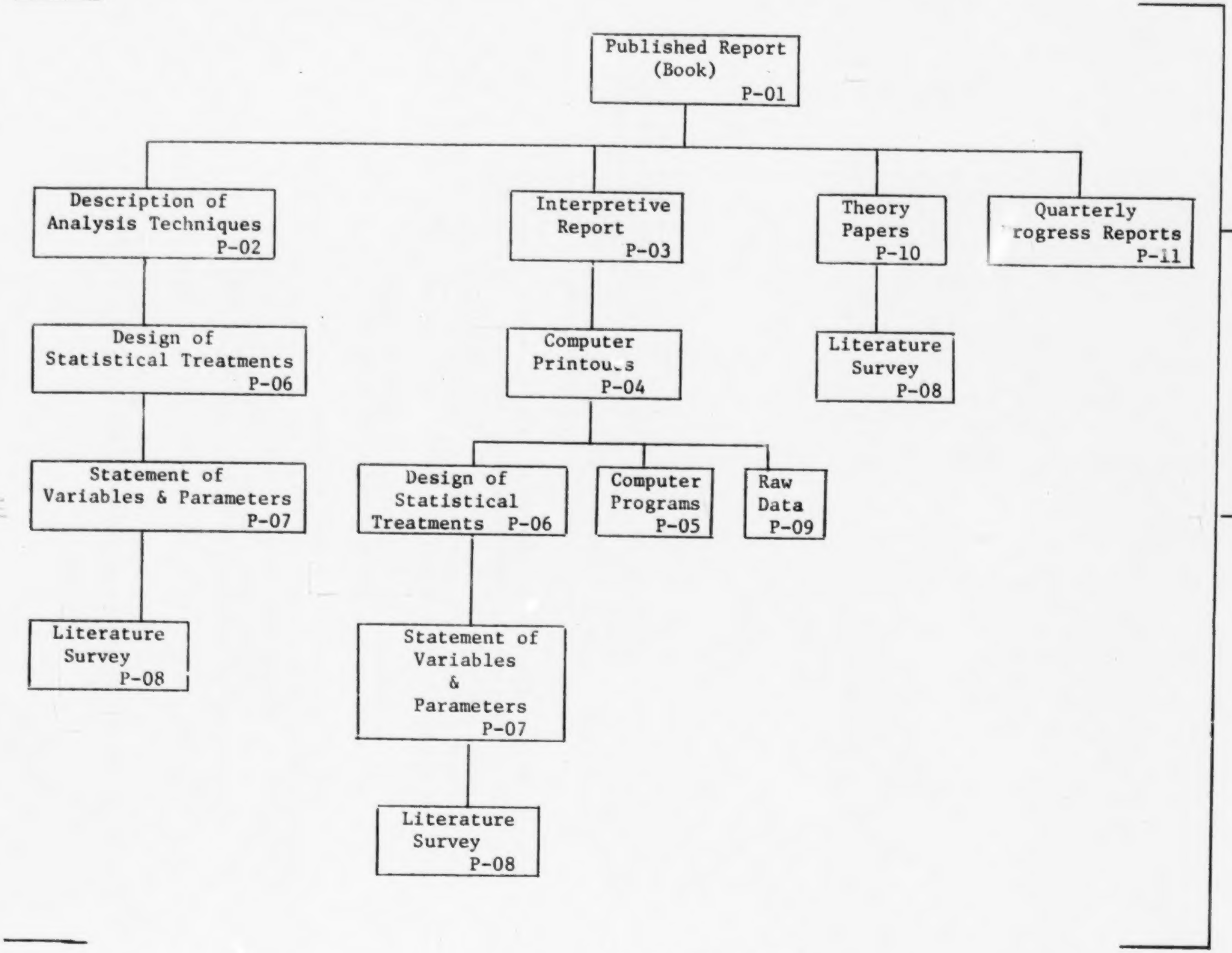
Published Report (Book) P-01
Description of Analysis Techniques P-02
Design of Statistical Treatments P-06
Statement of Variables & Parameters P-07
Literature Survey P-08
Interpretive Report P-03
Computer Printouts P-04
Design of Statistical Treatments P-06
Computer Programs P-05
Raw Data P-09
Statement of Variables & Parameters P-07
Literature Survey P-08
Theory Papers P-10
Literature Survey P-08
Quarterly Progress Reports P-11
Budget M-12
Financial Report M-13
Schedule M-14

FIG. 5. Output map.

Chapter III: Summary of the Data

The interview data collected from the Stability Study are presented in this chapter in a summary form of coded statements. The coded statements themselves are found in Appendix A, and the tables included in this chapter each summarize these data by category and by the outputs interviewed around during the site visit. The statements made during an interview around a particular project output are identified and written into forms under the category headings of either (a) the standards used to judge the satisfactory completion of the outputs, (b) the tasks required to generate an output meeting those standards, or (c) the enablers (knowledges, skills, sensitivities) required to facilitate the carrying out of those tasks.

Within each category are a series or set of descriptive labels which are representative of interviewee statements (raw data) within a particular category. These descriptive labels are listed in the table under the category heading. In the process of reducing raw data, narrative interviewee statements (raw data) about an output were linked to one of the three major categories. Each narrative statement was then classified by means of a number code according to the most representative descriptive label within a given category or subcategory.

Each table provides the frequency with which interviewees cited specific statements (which are represented by the descriptive labels in the tables) of standards (Tables 1 and 2), tasks (Table 3), and enablers (Tables 4, 5, 6) in relation to the outputs that are listed.[2]

Output Analysis

Standards held for outputs. Tables 1 and 2 present the standards elicited against the listed outputs. The standards are subdivided and tabulated under two major sets or categories--production standards (Table 1) and management standards (Table 2).

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[2] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the appendix opposite this number is the original narrative statement from an interviewee and is only represented in the table by the descriptive label and its numerical coding.

TABLE 1

Output Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Outputs (Category code no. and label for coding set J-1)											
No.	Label	01 Completeness of content	02 Quantity of outputs/data	07 Personal satisfaction/feeling	09 Lack of errors/discrepancies	12 Goal attainment	13 Acceptance by others (in proj)	16 Compares favorably	18 Satisfactory appearance	19 Logical criteria	24 Terminology appropriate	29 Meets design expectations	Output Totals
P-01	Published Report	1				1		1	1	2	1		7
P-02	Description of Analysis Techniques			1			3						4
P-05	Computer Programs				1		1		1			1	4
P-10	Theory Papers		2										2
Category Totals		1	2	1	1	1	4	1	2	2	1	1	17

TABLE 2

Process Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Processes (Category code no. and label for coding set J-2)			
No.	Label	04 Deadlines are met	11 Costs consistent w/estimates	20 Performance respected	Output Totals
P-01	Published report			1	1
M-13	Financial report		1		1
M-14	Schedule	1			1
Category Totals		1	1	1	3

Within the production standards table there were a total of 17 narrative "standard" statements elicited from interviewees relative to three outputs of the Stability Study. Note, however, that there are only 11 descriptive labels from the production standards category which are listed to represent those 17 narrative statements.

The data in the table indicate that the same number of standards (descriptive labels) are not reported for each output--seven standards were cited for the published report; four standards were reported for the computer programs and analysis techniques; and two standards were reported for the theory papers.

In the instance of three of the outputs listed in Table 1, note that there are multiple entries for one descriptive label relative to a single product. These entries are representative, in number only, of distinct yet similar narrative statements of production standards relative to a particular output. For example, two standards under one descriptive label ("Logical criteria") are reported in relation to the published report. This means that two distinct narrative statements about the standards of the published report have been classified under one (generic) descriptive label. Locating these two narrative statements in the Appendix, they read: "Product makes sense in terms of content" and "Product is adequate in terms of logic--statistical and conceptual logic." These are different statements but related in that they generally are indicative of the descriptive label "Criteria factors logically related to objectives."

The data available in Table 2, for management standards, are not complete enough to draw definitive conclusions.

Tasks pertaining to output attainment. A total of 54 narrative "task" statements were elicited from interviewees relative to seven outputs of the Stability Study. These 54 narrative statements are represented in Table 3 by 10 descriptive labels from the task category. Concentrations of tasks appear under the following descriptive labels: Clarifying problem addressed, Designing the output, Collecting/Processing Data, Effecting quality control.

Note the multiple entries for the descriptive labels "Collecting/processing data" (10) and "Designing the output" (5) in terms of the outputs labeled "Computer Programs" and "Design of Statistical Treatments" respectively. The data indicate that in terms of the computer programs 10 distinct yet similar tasks were executed within the general activity/classification of "Collecting/processing data."[3] Other tasks were performed in relation to this particular output, but the majority of tasks reported were concentrated within one specific classification; it is further observed that the ratio of concentrated tasks to more diffuse tasks is two to one. Further, given the output (Computer Programs), the clustering of tasks around the descriptive label "Collecting/processing data" seems to be appropriate.

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[3] Turn to the Appendix to locate the specific narrative statements represented by this descriptive label.

TABLE 3

Tasks Cited for Each Output Analyzed

Project Outputs		Clusters of Tasks (Cluster code no. and label for coding set NO)										
No.	Output	01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	21 Procuring professional staff	22 Effecting accountability	24 Effecting quality control	31 Diffusing info within project	Output Totals
P-01	Published Report	1				1		3				5
P-02	Description of Analysis Techniques	1			4		2		3	3		13
P-05	Computer Programs	1	1	2		10				1		15
P-06	Design of Statistical Treatments	2	1	5						1	1	10
P-10	Theory Papers	2	1	2	1							6
M-13	Financial Report								2	1		3
M-14	Schedule								1	1		2
Cluster Totals		7	3	9	5	11	2	3	6	7	1	54

Relative to the output labeled "Design of Statistical Treatments," data indicate a concentration of activity within the task category "Designing the Output" (see Footnote 3). However, the number of tasks represented by this descriptive label do not constitute a majority of the total number of tasks reported in relation to this particular output. It only represents one-half of the total tasks reported.

Again, the clustering of tasks around the descriptive label "Designing the output" seems to be an appropriate concentration of effort in relation to the output labeled "Design of Statistical Treatments."

It should also be noted that a concentration of tasks appear in relation to the following products: Description of Analysis Techniques, Computer Programs, and Design of Statistical Treatments. The primary goal of this project is to describe the academic growth or development of a nationwide sample of students by means of a number of statistical treatments and analyses performed on a large bank of raw data. Therefore, a concentration of tasks around these three outputs seems logical and appropriate.

Enablers pertaining to output attainment. Tables 4, 5 and 6 present the enablers elicited from the interviewees against the listed outputs. Enablers are subdivided and tabulated under three major sets or categories--knowledges (Table 4), skills (Table 5), and sensitivities (Table 6). These three categories of enablers are defined as follows:

Knowledges - what the staff needs to know.

Skills - what the staff needs to be able to do.

Sensitivities - what the staff needs to be aware of.

Within Table 4 there were a total of 39 narrative "knowledge" statements elicited from interviewees relative to seven outputs of the Stability Study. These 39 narrative statements (see Footnote 3) are represented in this table by 12 descriptive labels from the knowledges category.

A heavy concentration of knowledges (almost one-half of the total reported) appears under the descriptive label of "Subjects related to RDD&E." Looking at the narrative statements which this descriptive label represents, there is an emphasis on knowledge about statistical design and analysis, i.e., knowledge about what statistical treatments or analyses would be appropriate to obtaining a certain type of information.

The data available in Tables 5, for skills categories, and 6, for sensitivities categories, are not comprehensive enough for drawing any substantial conclusions.

TABLE 4

Enabling Knowledges Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Enabling Knowledges (Category code no. and label for coding set J-1) 02 Subjects learned in courses	03 Subjects related to RDD&E	04 Technical/professional topics	05 Project focus topics, external	06 Project variables: external	08 Project operation: specific	10 Staff status/responsibilities	11 Fiscal matters	12 Resources: personnel	24 Process implementation (proj)	25 Sources of info materials	26 Incorrect data entries/posting	Output Totals
P-01	Published Report	1	4							1				6
P-02	Description of Analysis Techniques		7									1		8
P-05	Computer Programs	1	1	5			1				1		2	11
P-06	Design of Statistical Treatments		6											6
P-10	Theory Papers		1		2	3								6
M-13	Financial Report								1					1
M-14	Schedule							1						1
Category Totals		2	19	5	2	3	1	1	1	1	1	1	2	39

TABLE 5

Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (Category code no. and label for coding set S-2)					
No.	Label	10 Analytical data handling	14 Writing	17 Interpreting language	19 Planning/conceptualizing	27 Using equipment/systems	Output Totals
P-01	Published Report	1					1
P-02	Description of Analysis Techniques		2	1			3
P-05	Computer Programs				1	1	2
Category Totals		1	2	1	1	1	6

TABLE 6

Enabling Sensitivities Cited for Each Output Analyzed

Project Output No.	Project Output Label	Primary Categories of Enabling Sensitivities (Category code no. and label for coding set S-3): 26 Recognition of data needs	29 Willingness to experiment	30 Response sets of tgt audiences	31 Nature/scope of output	Output Totals
P-02	Description of Analysis Techniques			1		1
P-06	Design of Statistical Treatments				1	1
P-10	Theory Papers	1	1			2
Category Totals		1	1	1	1	4

Chapter IV: Supplementary Data

Included in this chapter are data about output interrelationships, the backgrounds of project personnel, the job requirements for the project, and the support resources of the project.

Classification of Outputs

Figure 6 includes all of the production and management outcomes that were identified during the visit to the Stability Study site. Each output is classified according to its primary focus, its level in relation to other outputs, and the function which is served by that particular output within the context of the project.

Primary focus of an output refers to the nature of the output itself--is it "generalizable knowledge" (research), is it a "technology" (development), is it a "linkage network" (diffusion), or is it "information/data" (evaluation). The classification of an output into one of the four focus categories is based upon the immediate intent or purpose of that output and is not necessarily dependent on the nature of the activities that went into its generation.

An output is also classified as holding one of three positions or levels in the context of the project: focal, component, or facilitating. An output is classified as a "focal output" when it is the outcome of work expected, by contractual obligation, to emerge from a project. A component level output is an outcome of work effort that constitutes an element of or one step in the approximation to a focal output. A facilitating level output is an outcome of work effort that is supportive to the development of any of the outputs listed above, but is not in itself an instance of such outputs.

An output is also classified as to the particular function it serves within the context of the project. At least three separate though interdependent and mutually supporting functions must be performed in order for a project to meet its contractual obligations--the functions of production, management, and policy setting.

An output is classified as serving a "production" function when that output is used to execute the operations required to effect the expected (contracted) outcomes from a project.

An output is classified as serving a "management" function when that output is used to orchestrate the resources including time, money, and talent that are available to a project, so as to bring about the focal output(s) that has been contracted for at the quality level specified and simultaneously optimize the other consequences desired from the project.

OUTPUT	PRIMARY FOCUS	LEVEL	FUNCTION SERVED
Published Report (Book)	Research	Focal	Production
Description of Analysis Techniques	Development	Facilitating	Production
Interpretive Report	Research	Focal	Production
Computer Printouts	Evaluation	Component	Production
Computer Programs	Development	Facilitating	Production
Design of Statistical Treatments	Development	Facilitating	Production
Statement of Variables & Parameters	Development	Component	Production
Literature Survey	Evaluation	Facilitating	Production
Raw Data	Evaluation	Facilitating	Production
Theory Papers	Research	Focal	Production
Quarterly Progress Reports	Evaluation	Focal	Management
Budget	Development	Facilitating	Management
Financial Report	Evaluation	Facilitating	Management
Schedule	Development	Facilitating	Management

FIG. 6. Classification of outputs.

An output is classified as serving a "policy setting" function when that output is used to establish standards for the contractual focal output(s) of a project, to allocate resources toward the realization of that output, and to establish guidelines as to desired consequences of the project as a whole.

The published report, the interpretive report, the theory papers, and the quarterly progress reports are all focal outputs of the Stability Study. All of the other outputs are ancillary in nature and support the production of these focal outputs. Figure 5 in Chapter II graphically illustrates which component and facilitating outputs are linked to each of the identified focal outputs.

Summary of Staff Backgrounds

Of the three personnel who completed the Job/Task Inventory forms, two had doctoral degrees and one had a bachelor's degree. Their specialities were reported as:

Psychology/Educational Research
Statistics/Measurement/Educational Research
Psychology/Mathematics

The work experience of the three staff interviewed relative to a particular setting or context is represented in Table 7

TABLE 7

Frequency of Interviewee Work Experience per Work Setting Category

Work Setting/Context Category	Amount of Experience			
	No Experience	Less Than 1 Year	1-4 Years	5 or More Years
In R,D,D, or E Work	0	0	1	2
In Administrative Work	1	0	0	2
In College Teaching or Research	1	0	0	2
In Public Schools	3	0	0	0
In State or National Education Agencies	3	0	0	0
In R & D Centers	2	0	1	0
In Present Organization (may be concurrent with other areas above)	0	0	1	2
In Other Work Settings	2	0	0	1

Interviewees were asked questions pertaining to what prior training and education they had and what they thought was necessary for work on the project. The following are the questions asked and the responses given by the interviewees:

1. What specific knowledges and skills does the position require?

   Statistics
   Computer Science
   FORTRAN Programming

2. How many years of work experience does the position require in educational research, development, diffusion, and/or evaluation?

   The Project Director indicated that approximately three years' experience was required for his position; the Co-Investigator stated that five or more years of experience were required for his position; and the Senior Research Assistant indicated that experience in R,D,D, and/or E was helpful, but not necessary for that particular position.

Note that in Table 7, one interviewee had between one and four years experience and two had at least five years of experience in RDD&E work.

3. How many years of work experience does the positon require in administration or management?

   The Project Director stated that in a very supportive organization or agency, no administrative experience was particularly necessary for that position. The Co-Investigator indicated that his position required several years' experience in administration and management. The Senior Research Assistant indicated no administrative experience was necessary.

4. Academically the position requires what degree?

	Degree interviewee presently holds	Degree interviewee indicated position required
Project Director	Doctorate	Doctorate
Co-Investigator	Doctorate	Doctorate
Senior Research Asst.	Bachelor's	Bachelor's

Support Resources and Equipment

Those support resources called upon by the staff and seen as necessary included:

Printing.
Duplication services. (Xerox)
Art work and illustrations.
Editing.
Secretarial service.
Typing.
Purchase of supplies and equipment.
Library.
Subscriptions to technical and professional journals/periodicals.
Requests for documents or publications not locally available.
Computer analysis services.
Computer program writing.
Statistical consultation.
Travel arrangements.
Budgetary and other fiscal accounting.
Scoring of test items.

The support equipment available and used directly by project personnel included:

Dictating equipment.
Desk calculators.
Remote computer terminal.
Onsite computer.
Key-punch machine.
Data card sorter.
Readers for microfiche or microfilm.
Tape recorder.

Classifications of Output Characteristics

As the Oregon Studies evolved it became evident that outputs could be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, or production), (c) Level (focal, component, or facilitating), (d) Character (knowledge, technology, implementation, or information), and (e) Stage of Completion. These five schema are represented in Table 8 for each project output identified, with frequencies summarized for each category. Table 8 has been added to this profile subsequent to the profile's original writing.

TABLE 8

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Published Report (Book)	X				X		X			X								X	
P-02	Description of Analysis Techniques	X				X				X		X						X		
P-03	Interpretive Report	X					X	X			X							X		
P-04	Computer Printouts	X					X		X					X				X		
P-05	Computer Programs	X				X				X		X						X		
P-06	Design of Statistical Treatments	X				X				X		X								X
P-07	Statement of Variables and Parameters	X					X		X			X								X
P-08	Literature Survey		X				X			X						X				
P-09	Raw Data	X					X			X				X	X					
P-10	Theory Papers	X					X	X			X							X		
P-11	Quarterly Progress Reports	X				X		X						X						X
M-12	Budget	X				X				X	X					X				
M-13	Financial Report	X				X				X				X						X
M-14	Schedule	X				X				X		X				X				
Classification Frequencies[b]		13	1	0	0	8	6	4	2	8	4	5	0	4	1	3	0	5	1	4

[a] The specific output characteristics are identified as follows:

Structure	Function	Level	Character	Completion Stage
p - product	ps - policy setting	f_1 - focal	k - knowledge	1 - completed over one year ago
e - event	m - management	c - component	t - technology	2 - completed 3 to 12 months ago
c - condition	p - production	f_2 - facilitating	i_1 - implementation	3 - completed within last 3 mos.
			i_2 - information	4 - currently in progress
				5 - not yet underway
				6 - on going (continuous)

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

Chapter V: Project Dynamics

The significance and utility of this study, as viewed by the project staff, is in its attempt to integrate the analyses of longitudinal data with an emerging theory of stability relative to student academic growth. Although the analyses and related descriptions would fulfill the terms of the contract, it was felt that an examination of the phenomena in question in terms of the research that has been done in the past and an intepretation of the data along with some theoretical speculation will provide a much more substantial contribution than would a mere descriptive analyses of the data. With an integration of all these elements into a new conceptual scheme, the staff hopes that further efforts in this area of research will be sufficiently facilitated.

The original proposal submitted to the funding agency was for a two and one-half year study. It was to include a description of the data analyses; the development of a model for encoding, testing, manipulating, and improving theory; a simulation of the model; and field case studies. However, the study was funded only for one and one-half years for the descriptive phase of the original project.

In general, the Project Director feels that much of the current educational research is sterile in that the knowledge gained has not been commensurate with the expenditures. Many studies, in his opinion, have been nothing more than a mere translation of a computer output into words which he feels is a limited contribution at best.

In spite of limited resources, and the fact that the analyses and related descriptions would fulfill the terms of the contract, the Project Director feels it important and necessary to attempt to integrate the analyses of longitudinal data with an emerging theory of stability relative to student academic growth. This set of activities is viewed as the most significant in that they will provide a much more substantial contribution than would an exclusive description of the data. The integration of all the elements into a new conceptual scheme is recognized as a formidable and difficult, but critical, task; it was felt that to do anything less would be limiting the progress of future efforts in the field.

Management and Communication Processes

Communications among the project staff seem to be easy and informal, with information being transmitted either by telephone or in person. Since the staff is located in different buildings, the three staff members meet frequently to discuss project progress and/or any specific problems which may need group attention and/or decisive action.

Decision-making relative to the projection of project outcomes is done on a consensus basis. If consensus is not reached on a particular, needed decision, an individual with expertise in the particular problem area is consulted for suggestions and/or alternatives relative to the specified issue. The staff would then reconsider the issue or problem, taking into account the input from the consultant(s), and attempt to again reach a decision on a consensus basis.

Interrelationships Among Project Staff

The staff view themselves as members of a team working together toward the outcomes of the project. Each staff member respects the other's work, and each is notably committed to ensuring excellence in project outcomes. It was concluded by the data-gathering team that this philosophy of excellence is prevalent throughout the agency as well as within the context of this project, and that there is a feeling of being associated with an agency which is able to meet a certain set of the nation's needs with a high degree of quality.

Interrelationships Between Project and Parent Agency

The Stability Study is one of a series of projects in which the agency has been involved on a long-term basis. The agency's support is clearly visible in terms of monetary support--25% of the total funding level for this project--and consultant support--most of the individuals who have advised or consulted on the Stability Study are staff members within the parent agency.

Staffing is also another important factor. Within the agency there is a formal line organization--a vice president is responsible for a certain cluster of divisions and within each division is a collection of groups. However, projects, which are administratively situated within a group, may be staffed by a variety of professional personnel from within the agency. A project staff may be made up of personnel from several different divisions and/or groups within the agency.

Specific to the Stability Study, the Project Director is also the chairman of the group in which the project is located. The Co-Investigator and the Senior Research Assistant are from another division within the agency, a division of which the Co-Investigator is the director.

Physical Setting

The parent agency has eight main buildings located on a tract of land outside of Princeton, New Jersey. Some of the buildings, including one in which the Project Director is housed, are bordered by a wooded area. Most of the buildings are two stories high and appear to be relatively new.

The agency campus is located approximately four miles from the center of town with little auto traffic and extraneous noise in the campus area. Along with several office buildings, the campus includes a library, a conference facility, and a cafeteria.

Each of the project staff has his own office, and each office seems to be quite adequate in terms of work space. The observed offices and hallways were painted in an off-white color and were well lighted with each office and parts of some hallways having a window.

In terms of physical aspects, there was only one handicap mentioned--the fact that the three primary staff members are housed in different buildings. It is difficult to "pop" into one another's office, and special arrangements usually have to be made for the staff to get together to discuss particular issues and/or problems.

Chapter VI: Implications for Training

The concept of team work is heavily emphasized within the context of this project. Together, the staff define problems, consider solutions, and decide upon a course of action. Each staff member has a well-defined area of expertise and task responsibility. However, to achieve the project's final goal each member's contribution is carefully planned and integrated into the project as a whole. Given the complex nature of the tasks, which require detailed and specialized competencies, the concept of a team approach seems much more appropriate than expecting a single individual to have expertise in and contribute to all of the parts needed to achieve the final goal. The implication for training is that one may become specialized within a particular area of research activity, but he also must learn to integrate his skill(s) with the skills of others to achieve the final goal within a project context.

The ability to theorize or integrate elements into a new conceptual scheme was identified as an essential skill in this type of project. One interviewee stated that, "One must learn to have respect for theory and ideas and then be taught how to manage the interface between theory and data." It was suggested that training for this skill should focus on "learning by doing," i.e., actually developing a hypothesis and designing a method to investigate/test that hypothesis. Another interviewee noted that analyzing data relative to testing a hypothesis involves much more than summarization. The analysis should involve an interpretation of the data--what does it mean or imply in relation to the hypothesis.

This suggests that training, at least in the academic setting, should emphasize explanation and interpretation of data rather than description, which often provides "a compendium of undigested and unrelated facts which do not make a contribution (in terms of theory development)."

In response to questionnaire items concerning the preservice training most relevant to their present work, the interviewees listed the following:

Basic statistics courses.
Linear algebra.
Experimental psychology.
Experience in conducting experiments.
Experience in reporting (written) result of conducted experiments.
Statistics.
Experience in preparing theses.
Experience in working with "sharp" and experienced people.
Experience as a research assistant. (graduate school)
Philosophy of science courses.

Concerning professional work experience most relevant to preparing them specifically for work on this project, the interviewees listed the following:

Experience as director of another study.
Experience in writing computer programs.
Conversing with others about practical statistics.
Experience in working with practical statistics.
Experience in problem solving.
Experience in working with "sharp" people.

It should be noted that all interviewees indicated that practical experience (experience within a work setting) was one of the most powerful modes of learning. They indicated that that is where much of the "real" learning is experienced.

The knowledges and skills which two interviewees perceived as being necessary for carrying out the positions of Co-Investigator and Senior Research Assistant were similar to those identified for formal pre-service training:

Knowledge of statistics.
Knowledge of FORTRAN programming.
Knowledge in computer science.

When asked to suggest particular or specialized areas of training that their position required, the interviewees listed the following:

Theory courses in human development.
Theory courses in research methodology.
Training in statistics.
Training in computer science.
Training in mathematics or statistics. (bachelor's degree)

Appendix

Appendix: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. These statements were extracted from discussions with interviewees, and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J:	Structure of Standards.
J-1	Standards against which outputs are judged. (output oriented)
J-2	Standards against which processes and/or operations are judged. (process oriented)
Code LM:	Primary Categories of Standards.

TASKS

Code NO:	Clusters of Tasks

ENABLERS

Code S:	Structure of Enablers.
S-1	Knowledge.
S-2	Skill or ability to perform.
S-3	Sensitivity or awareness.
Code UV:	Primary Categories of Enablers (knowledges, skills, or sensitivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the seven analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

P-01: Published Report (Book)

STANDARDS:

J	LM	
1	01	Product is well documented

1	19	Product makes sense in terms of content.
1	18	Format is readable in terms of the target audience.
1	19	Product is adequate in terms of logic--statistical and conceptual logic.
1	16	Product is consistent with literature or work that has been done in the past.
1	24	Product is readable--content can be understood by target audience.
1	12	Product has some theoretical depth to it.
2	20	Observed staff in a variety of research situations (over last few years) and concluded they were competent.

TASKS:

NO	
01	Review the products (outcomes) of the project, i.e., the computer outputs.
05	Consider the data, the phenomena, and research that has been in the past to see if all these elements have been reintegrated into new conceptual scheme.
21	Determine the major thrusts or activities of the project, i.e., data processing, computer simulation, etc.
21	Select staff who are competent in performing these activities.
21	Select staff who are interested in the project.

ENABLERS:

S	UV	
1	03	Know what constitutes conceptual logic and statistical logic.
1	02	Know statistical terminology.
1	03	Know how statistics are manipulated.
1	03	Know various methods of analysis.
1	03	Know when to apply a method of analysis to the data.
2	10	Be able to interpret large scale analysis in terms of underlying theory that has been proposed and data that has been printed out.
1	12	Know the capabilities of a potential staff member.

P-02: Description of Analysis Technique

STANDARDS:

J	LM	
1	07	Satisfaction with own work on rereading.
1	13	Acceptance by programmer as accurate.
1	13	Acceptance by project director as complete, accurate, etc.
1	13	Acceptance by ETS review board.

TASKS:

NO	
01	Review statistical literature
04	Sort note cards into logical order.
04	Assemble sample problems.
04	Dictate rough draft.
04	Sketch out information about references.
06	Rewrite to correct errors obvious to self.
06	Rewrite if necessary.
22	Keep all thoughts (on 3 x 5 file cards) that might be useful.
22	Have secretary pull out references - names of sources, tests, etc.
22	Have secretary or research assistant fill our references completely.
24	Submit to programmer for accuracy.
24	Submit to director for review.
24	Submit to ETS review board - at least 2 persons.

ENABLERS:

S	UV	
1	25	Knowledge of statistical literature.
1	03	Knowledge of factor analysis.
1	03	Knowledge of reliability of measures-factor scores.
1	03	Knowledge of sampling techniques.
1	03	Knowledge of regression analysis.
1	03	Knowledge of scaling techniques.
1	03	Knowledge of multivariate analysis.
1	03	Knowledge of experimental design theories.
2	17	Skill in translating from FORTRAN to English.
2	14	Skill in writing explanations of examples.
2	14	Skill in writing in a clear, direct literary style.
3	30	Sensitivity to interests of research professionals.

P-05: Computer Program

STANDARDS:

J	LM	
1	09	If using a small amount of data, a check (compute) by hand confirms it is correct.
1	29	Results (range of scores and statistics) seem reasonable--subjective evaluation resultant from familiarization with the data.

1	13	Other project staff have not spotted any additional errors.
1	18	Outputs are according to format specifications.

TASKS:

NO	
02	Inquire of staff what has to be done in terms of type of output and statistical treatment.
03	Determine the statistical treatments and type of output.
03	Identify problems, e.g., cells that won't be complete in the analysis.
01	Identify problems in the data, e.g., missing data, miscoded data.
05	Write down the job control language for a program.
05	Write the control cards which will get the devices needed for the program.
05	Determine which tapes are needed to get program working.
05	Identify subroutines that will be used--identify these from an agency manual which lists all the available subroutines--depending on statistical treatment.
05	Determine the matrix required for the variable under investigation.
05	Determine the dimensions of the matrix implied by the analysis required.
05	Set up labels and headings.
05	Call standard subroutines that have to be called in order to get package working.
05	Set up constants--that may be needed later on in the program.
05	Consider format specifications for the printout.
24	Edit data--make sure data is correct as it came from the student.

ENABLERS:

S	UV	
1	04	Know the problems relative to the tape, e.g., missing data (missing ID information and missing test score information).
1	08	Know which items were coded differently over a period of time.
1	26	Aware of scores that were put on the tape when they were out of range.
1	26	Know why out-of-range scores were put on tape so the mistake can be anticipated.
1	24	Know how to manipulate data to use the routines.
1	02	Understand statistical computations and what they mean.
1	03	Understand what kind of statistical analysis would be appropriate to get certain types of information.
1	04	Understand what the various subroutines do--without necessarily knowing the specific formulas.
1	04	Know how the machine stores the data.
2	19	Ability to think logically.
1	04	Know how data are stored on various devices--tape/disc/card.
2	27	Ability to store data in the most efficient way for the needs of the project.
1	04	Know the problems encountered when storing data in one way or another (how the records are organized).

P-06: Design of Statistical Treatments

STANDARDS:

No information collected under this heading.

TASKS:

NO	
01	Review of all work from earlier projects for understanding of questions to be addressed.
03	Study and test various statistical methods in order to test style of information yield against identified questions.
03	Select most useful statistical methods.
24	Supervise staff's testing of some of the possible statistical methods--answering questions.
02	Discuss with programmer about yield, most useful methods.
31	Present selected data analysis techniques to other experts in the Division (statisticians).
01	Study sampling theory to understand problems identified by other staff members.
03	Do algebra to test various sampling theory techniques.
03	Program, test, manipulate data doing sample problems in books with each of several techniques to test of appropriateness.
03	Make final selection of appropriate statistical methods.

ENABLERS:

S	UV	
1	03	Knowledge of path analysis technique.
1	03	Knowledge of co-variance analysis techniques.
3	31	Sensitivity to interrelationships of the variables involved.
1	03	Knowledge of analysis of variance (cross classified design to get out several of statistics).
1	03	Knowledge of Scheffe's test (measures of information).
1	03	Knowledge of Duncan's interpretive analysis techniques.
1	03	Knowledge of Tukey test of nonadditivity.

P-10: Theory Papers

STANDARDS:

S	LM	
1	01	Felt as if the subject had been comprehensively covered.

1	01	Felt as if the variations had been exhausted.

TASKS:

NO	
01	Select topic of the paper--meaning of stability.
01	Define the problem--what are we really trying to find out.
03	Propose several operations of the data to go through to define the stability, i.e., variance of distribution from one time frame to the next.
02	Determine the conditions which could be defined as stability or instability.
03	Select which condition(s) is most consistent with the theoretical proposition of the definition of stability.
04	Formulate (in writing) some of the propositions or hypotheses relevant to stability.

ENABLERS:

S	UV	
1	04	Knowledge of theory in information processing.
1	05	Knowledge of simulation of cognitive processes.
1	06	Know what information in the environment human beings pay attention to.
1	06	Know how human beings acquire environmental information.
1	06	Know what human beings do on the basis of environmental information--what cumulative, long-term impact it has on their behavior.
1	05	Have some theoretical propositions about student growth.
3	26	Sensitivity to the literature or previous work in relation to stability and academic growth.
3	29	Favorable disposition (sensitivity) toward theory development.
1	03	Knowledge of some descriptive statistics.

M-13: Financial Report

STANDARDS:

J	LM	
2	11	Budget expenditures are within limits of the spending plan.

TASKS:

NO	
22	Fill out a "time-cost log" every two weeks--to charge working time against a project.

22	Review project financial report which is prepared by the business office every two weeks.
24	Take corrective action relative to a budget item that is encumbering costs more quickly than planned.

ENABLERS:

S	UV	
1	11	Know how to read the financial reports (forms) which the agency business office issues.

M-14: Schedule

STANDARDS:

J	LM	
2	04	Bench marks of the project's progress achieved as scheduled.

TASKS:

NO	
22	Keep activities moving (roughly) in accordance with the time table submitted with the proposal.
24	Look for benchmarkers in the progress of the project, e.g., a prototype of the descriptive output.

ENABLERS:

S	UV	
1	10	Know what each of your staff is doing.

CASE PROFILE NO. 4

Written by
R. E. Myers

PROJECT TITLE: Perceptual and Memory Components in Reading

(READING SKILLS Project)

AN EDUCATIONAL RESEARCH PROJECT CONCERNED WITH: Defining specific component skills which combine to form the more complex processes of reading and reading acquisition.

A PROJECT OF:

School of Education
Stanford University
Palo Alto, California

This profile has been prepared according to

PROFILE FORMAT No. 2

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

The overview presents a brief synopsis of the Perceptual and Memory Components in Reading Project as an introduction. This is elaborated by a discussion of the objectives, rationale, and significance of the project and the context in which it operates.

Synopsis of the Project

Title: Perceptual and Memory Components in Reading.

Responsible Institution: Stanford University.

Funding Source: U.S. Office of Education.

Funding Duration: April 6, 1970 to April 5, 1972. (24 months)

Observation Date: May 1971.

Present Stage of Development: Mid-Project.

RDD&E Focus of Project: Educational research.

Expected Outcome: Acquisition of Reading Skills Tests Package.

Level of Funding and Duration: Medium-Low. (level 3 of 7 levels)

Agency Setting: University.

Staff Summary (Current):	Professional	Support
Total Full Time Equivalency (in man years):	3.5	2
Number of Personnel Assigned:	11	2

Professional Specialities of Staff (interviewees only): psychology, educational research, guidance/counseling, statistics, measurement, philosophy of science, economics, accounting, research design, and physics/chemistry.

Objectives, Rationale, and Significance of the Project

Project goals. Two problems are being investigated by the personnel of the Reading Skills Project: (a) the nature of the reading process and (b) initial acquisition of reading functions. Research on the former will focus initially on normal readers from grades two through six. Research on the latter will focus on nursery and kindergarten children from impoverished backgrounds. The general strategy is to define specific component skills which combine to form the more complex processes of reading and reading acquisition. Then a cluster of converging experimental tasks are devised to determine the adequacy of the preliminary definitions of component skills and to provide information about the operating properties of the skills.

A model of reading is being proposed. It consists of a sequence of information-processing stages; visual input, work-syntax interpretation, semantic interpretation, and storage in information memory. Two control processes are also being proposed: attentional-scanning control and understand-organize control. The first control process is identified with perceptual and the second with memorial elements in reading. Several experiments are being conducted to explore these processes: visual search, recognition-memory search, multiple-choice recognition memory, retrieval and editing in recall memory, paraphrase effects, and core ideas in comprehension.

A model of reading acquisition is being proposed which focuses upon visual analysis, acoustic-analysis, and letter-sound correspondence learning. Experiements are being conducted which explore the development of specific cognitive skills within each area.

Rationale of the project. While very few children have difficulty with the spoken form of the language, various estimates describe between 10% and 25% who have difficulty in learning to read adequately. The assumption is that beginning reading is a transfer task between the spoken and the written work, and because of the failure of many children to gain an adequate use of the written form, it is necessary to investigate how efficiently children can be taught beginning reading.

Significance of the project. This research will add to (a) knowledge about how skilled readers perform, (b) knowledge about the cognitive skills needed to learn how to read, and (c) the development of testing and training techniques which can be used in measuring and improving reading readiness skills. In addition, information about the special problems of children from culturally impoverished backgrounds will be of use to educators in disadvantaged neighborhoods. The findings concerning the basic reading acquisition skills can be useful in many theoretical and practical ways, and the findings concerning the disadvantaged groups should be of immediate use to educators.

Context in Which the Project Operates

Figure 1 indicates the flexible atmosphere in which the project operates. Although the project is based in a university setting, its connections with other institutions and individuals are important. Especially significant is the unofficial relationship with a collaborator at another university. He and the Project Director frequently confer about the progress of this project and others.

The contextual map also points out another salient feature--the project is being carried out by more than its officially listed staff. Graduate students of the Project Director and other persons participate in the experiments.

The choice of schools in a city 20 miles away for the testing of children was deliberate. The schools surrounding the university are felt to be over used with regard to experimentation, and a more distant city provides children of differing backgrounds, particularly those of a Spanish-speaking culture. In seeking the cooperation of the schools, a working relationship has been developed between the Project Director, Project Coordinator, and school district personnel.

In addition to interested persons on the university campus others outside of the university have become involved in the project. An example is an architect from Israel who spent two weeks working with the Project Director and his staff.

Although its present funding carries the project to April, 1972, the viewpoint of the staff is a long-range one. What is learned in this project will be used in subsequent projects.

Supporting and technological resources. The technological resources available to the project personnel enable them to carry out the experiments of the project efficiently. In fact without the computer center and its services it would not be possible for the project to accomplish its goals. The Project Director relies upon standard computer programs to process the majority of the data collected, but he also is able to write programs when needed. A mobile testing unit, tachistoscope, television equipment, and other necessary hardware are leased by the project.

Time lines. Figure 2 presents the time lines for the major outputs of the project. The summer program noted in the figure has to do with helping teachers in the participating schools with diagnosing and dealing with reading problems. This is one form of repayment for their cooperation with the project.

Physical/environmental setting. The main work location of the project is the northern half of a duplex which is only 100 yards from the university's book store and one-half-block's distance from one of its libraries. The distance to the other work location, the School of Education Building, is about one block. The Project Coordinator's office, several smaller offices, and a large room, which serves as work space and

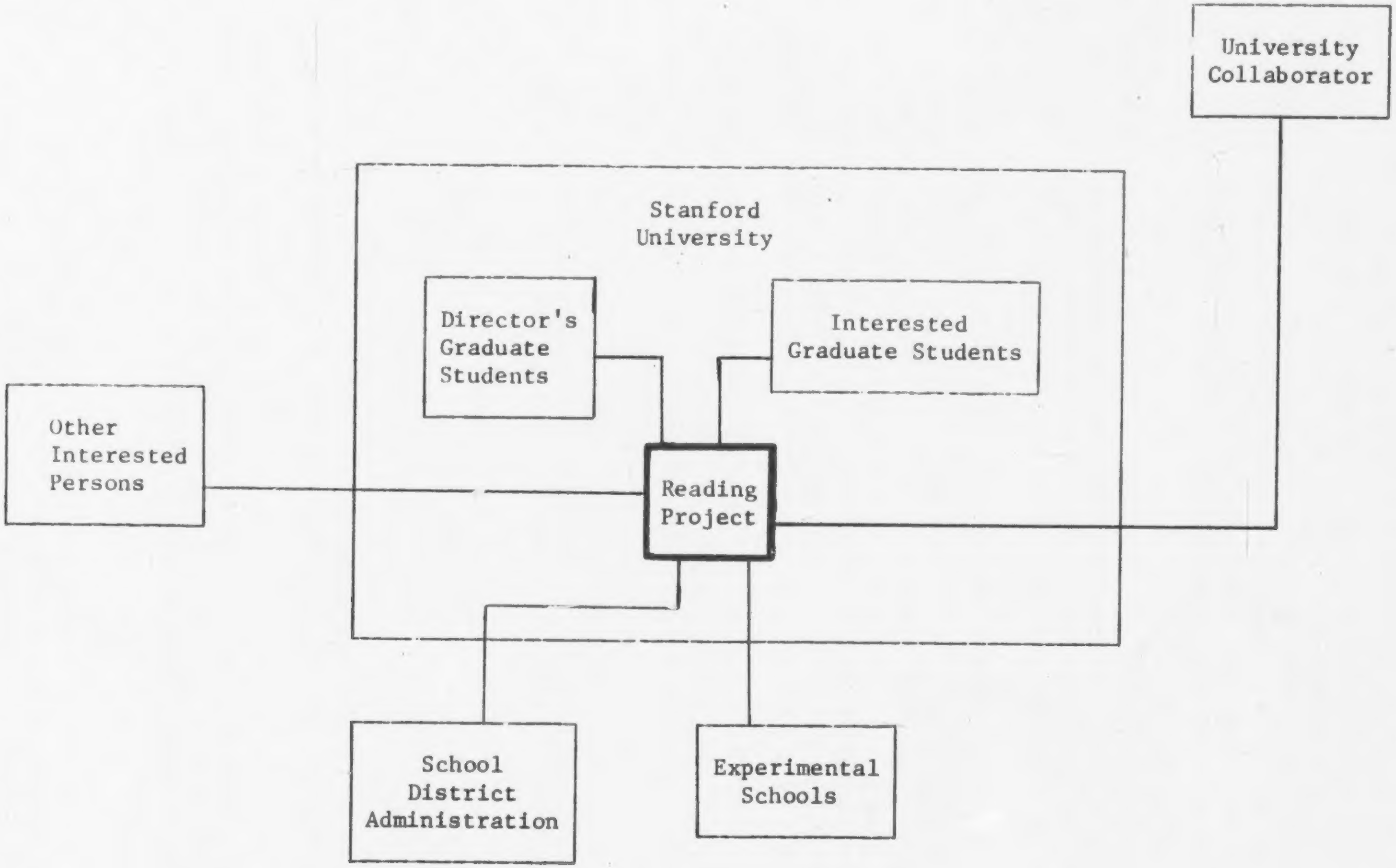
University
Collaborator
Stanford
University
Director's
Graduate
Students
Interested
Graduate Students
Other
Interested
Persons
Reading
Project
School
District
Administration
Experimental
Schools

FIG. 1. Contextual map.

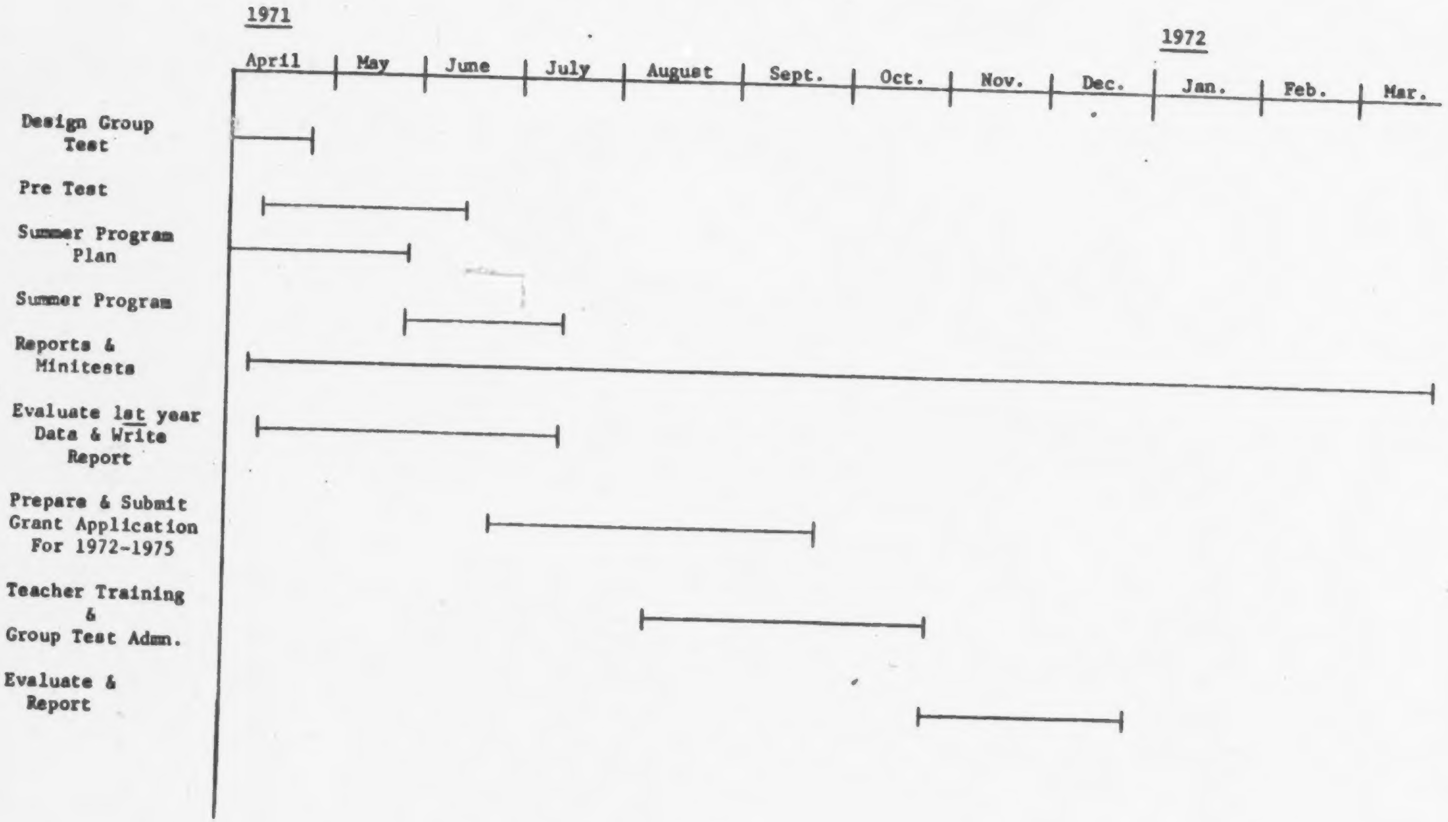

FIG. 2. Partial time lines for project.

an office, make up the physical facilities of the duplex. Although the Project Director's office is in the School of Education Building, the lines of communication between the two groups of persons are apparently uncluttered.

The campus is located on the San Francisco Peninsula close to the city of Palo Alto. This area has a wealth of technological and human resources. The weather is dry in the summer, occasionally wet in the winter, and seldom cold. Transportation in the area is generally by means of freeways.

Chapter II: Parameters of the Project

This chapter discusses the staffing pattern of the project, includes a roster of staff, describes the outputs being generated, and shows the dependent relationships of the outputs in an output map.

Project Structure

Staff structure. The organizational structure of the project allows for everyone involved with the project to interact with the Director, and for delegation of certain responsibilities to the Project Coordinator. The latter is in effect the financial officer of the organization. He manages the project's budget and takes care of the "housekeeping" chores. In addition, however, the Project Coordinator participates in most phases of the research being conducted, and so he has knowledge of the inner workings of the project's operations. The two persons who interact with the Director most, aside from his secretary and the Coordinator, are his teaching assistants. They manage a great deal of the data analysis for the project. A number of graduate students who participate in the experimentation are not officially members of the staff.

Project roster. The data from six interviews at this site are presented in this profile. The interviewees were the Project Director, the Project Coordinator, a secretary, who also carries out research tasks, two teaching assistants, and a research assistant. A number of other persons might have been interviewed inasmuch as many students have become involved in this research project, but those selected were considered as the key members of the staff. The project's organizational structure is represented by Figure 3 and a roster of staff by Table 1.

TABLE 1

Project Roster of Staff by Job Titles

Administrative

Project Director*
Project Coordinator*

Administrative/Clerical

Secretary
Secretary/Research Assistant*

Research Staff

Research Assistant*
Research Assistant
Teaching Assistant*
Teaching Assistant*
Graduate Students (5)

*Interviewee

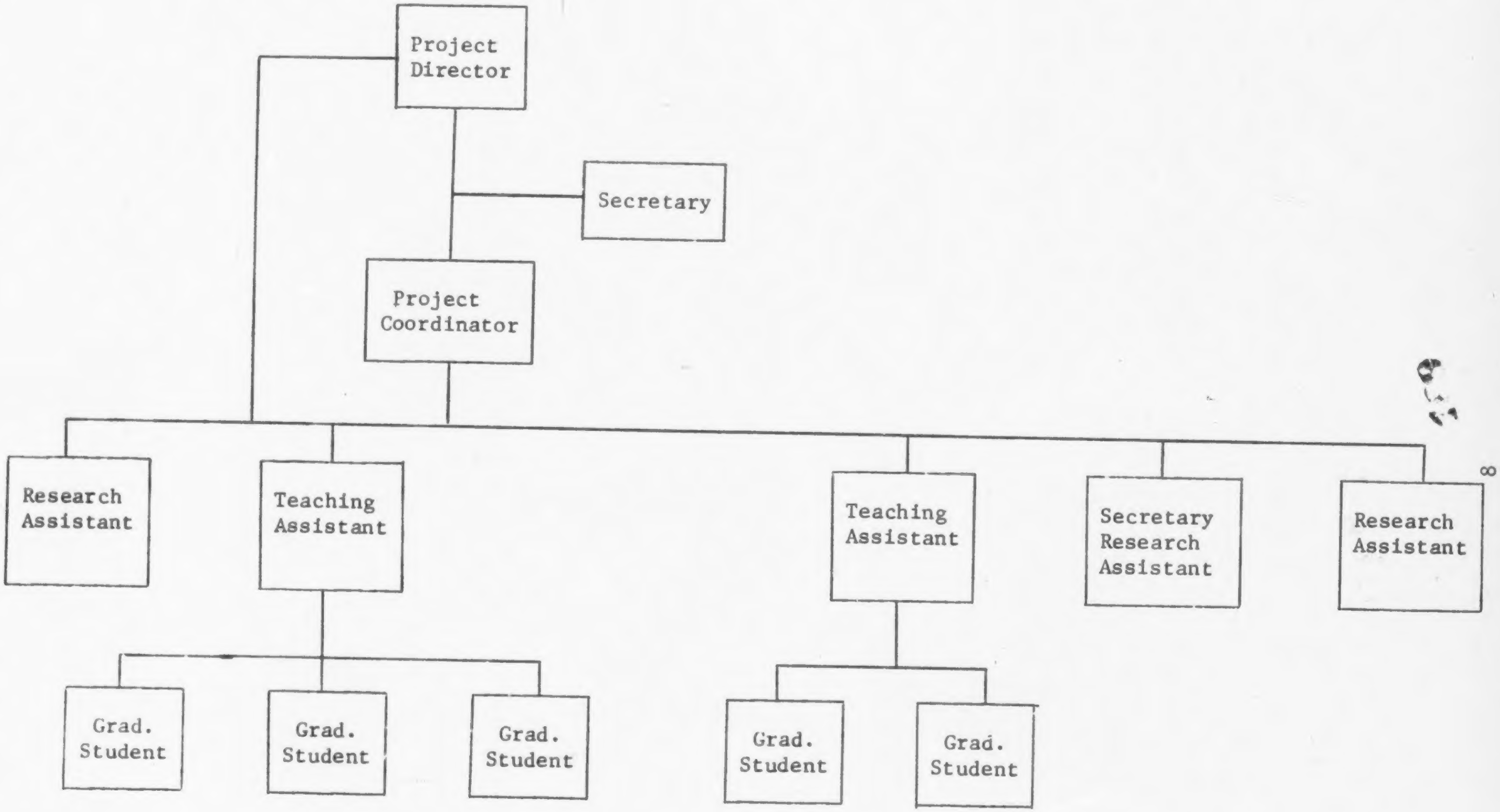
Project Director
Secretary
Project Coordinator
Research Assistant
Teaching Assistant
Teaching Assistant
Secretary Research Assistant
Research Assistant
Grad. Student
Grad. Student
Grad. Student
Grad. Student
Grad. Student

FIG. 3. Project organizational structure.

Outputs Generated

Index of outputs. The 28 outputs identified in this project are briefly described here. Table 2 indexes these outputs by level. Level refers to the nature of the output as either being focal, i.e., an expected, contractual obligation to emerge from the project; component, i.e., an outcome of work effort constituting an element of or one step in the approximation to a focal output; or facilitating, i.e., an outcome of work effort supportive to the development of any other outputs.

Each output is also indexed by an arbitrary identification number consisting of two parts: (a) a letter which permits easy identification of the output as a tangible product (P) or a management outcome (M); (b) a sequence number for all outputs irrespective of P or M. The numerical designation of the outputs appears in various tables and charts permitting one to examine a description and match the data for other tables to it. The following is a description of each of the identified outputs. An asterisk (*) before the output's identification number indicates that that output was interviewed around.

P-01. Model of Reading Skills Acquisition. Basic to the research design and methodological procedures of the project was the creation of a model of reading skills which included those abilities necessary to be able to read (e.g., alphabet recognition, segmentation, etc.).

P-02. Model of Reading. The model focuses on visual analysis, acoustic analysis, and letter-sound correspondence learning.

*P-03. Data Analysis Techniques. Primarily, these techniques are concerned with the analysis of covariance. Inasmuch as the Project Director teaches university courses which feature these techniques and his students are involved in the project, statistical techniques are prominent among the activities of the people connected with the project.

*P-04. Data Collection Procedures. The procedures for collecting the data in the schools is crucial to the project's success. These procedures are constantly being critically examined and revised; they include the details of test construction and administration.

P-05. Site List (Data Source). The site list includes the schools to which the mobile testing unit is directed and also the pupils who are to be tested. The method of separating Mexican-American pupils from others, incidentally, is by the recognition of a Spanish surname.

P-06. Data Collection Instruments. The tests used to collect the data are constructed by the project staff (including interested university students). They are tried out on staff members, their children, and others before they are used in the field.

TABLE 2

Index of Outputs

LEVEL I: FOCAL OUTPUTS

Model of Reading Skills Acquisition (P-01)
Model of Reading (P-02)
*Acquisition of Reading Skills Tests Package (P-21)
Nature of the Reading Process (P-22)
Video Speech (M-24)
Technical Report (M-25)
Progress Reports (M-26)
Journal Articles (M-27)
Final Report (M-28)

LEVEL II: COMPONENT OUTPUTS

*Data Analysis Techniques (P-03)
*Data Collection Procedures (P-04)
Site List (Data Source) (P-05)
Data Collection Instruments (P-06)
New Antonymy Tests (P-07)
Antonymy Tests (P-08)
Synonymy Tests (P-09)
Common Labels Tests (P-10)
Fine Distinctions Tests (P-11)
Vocabulary Tests (P-12)
*New Segmentation Tests (P-13)
Segmentation Tests (P-14)
*New Visual Discrimination Tests (P-15)
Visual Discrimination Tests (P-16)
Alphabet Recognition Tests (P-17)
New Alphabet Recognition Tests (P-18)
Acoustic-Phonetic Analysis Tests (P-19)
Visual Analysis Tests (P-20)

LEVEL III: FACILITATING OUTPUTS

Working Papers (M-23)

*Indicates that this output was interviewed around.

P-07. New Antonymy Tests. These are tests being developed by project staff, of a child's ability to see word opposites.

P-08. Antonymy Tests. These tests were developed at the outset of the project, prior to the first testing.

P-09. Synonymy Tests. These are the basic tests used to test the child's ability to recognize synonyms.

P-10. Common Labels Tests. These tests measure the child's ability to use common labels to identify various items.

P-11. Fine Distinctions Tests. These tests measure the child's ability to draw distinctions between concepts.

P-12. Vocabulary Tests. The child's ability to call forth required words for specified stimuli is measured by these tests. These include tests for fine distinctions, synonymy, antonymy, and common labels.

*P-13. New Segmentation Tests. The tests being developed by the project staff to determine whether the child can separate the parts of words ("ong" from "long," for example) are supplementing those developed at the beginning of the project.

P-14. Segmentation Tests. (See P-13.)

*P-15. New Visual Discrimination Tests. Original tests featuring nonverbal symbols were created for this project in order to determine whether certain visual cues can be detected by six- and seven-year olds in their attempts to make sense out of printed symbols. The figures (symbols) used in these tests are analogous to those found in traditional orthography.

P-16. Visual Discrimination Tests. (See P-15.)

P-17. Alphabet Recognition Tests. The traditional alphabet is also used to determine differences between children's ability to begin reading. (These tests are highly predictive of initial reading success.)

P-18. New Alphabet Recognition Tests. These tests are currently being added to the originals.

P-19. Acoustic-Phonetic Analysis Tests. Sound-sight correspondence tests include the vocabulary tests and the segmentation tests.

P-20. Visual Analysis Tests. These are the tests of alphabet recognition and visual discrimination.

*P-21. Acquisition of Reading Skills Tests Package. The package of tests define the specific component skills of reading acquisition.

P-22. Nature of Reading Process. The model of reading being formulated consists of a sequence of information-processing stages, visual input, word-syntax interpretation, semantic interpretation, and storage in information memory.

M-23. Working Papers. A variety of working papers written to provide the theoretical basis for the experimentation, and to include the tests being used.

M-24. Video Speech. As a result of interest in the project, a speech was delivered for television regarding the implications of the experimentation.

M-25. Technical Report. A technical report of the experimentation was written which set forth data derived from the work done on this project and related projects.

M-26. Progress Reports. Quarterly reports are submitted to the sponsor which detail the progress of the project and provide updated time lines.

M-27. Journal Articles. Articles for professional publications are being generated as confirmed results of their experimentation are determined.

M-28. Final Report. A final report of the project's findings will be submitted to the sponsor at the end of the funding period.

Output map. The outputs of the Reading Skills Project described above are presented graphically in Figure 4. The figure attempts to represent the dependent relationship of one output to another. It should be noted that this schematic does not necessarily represent output development in relation to time. It only represents the dependency relationships between outputs.

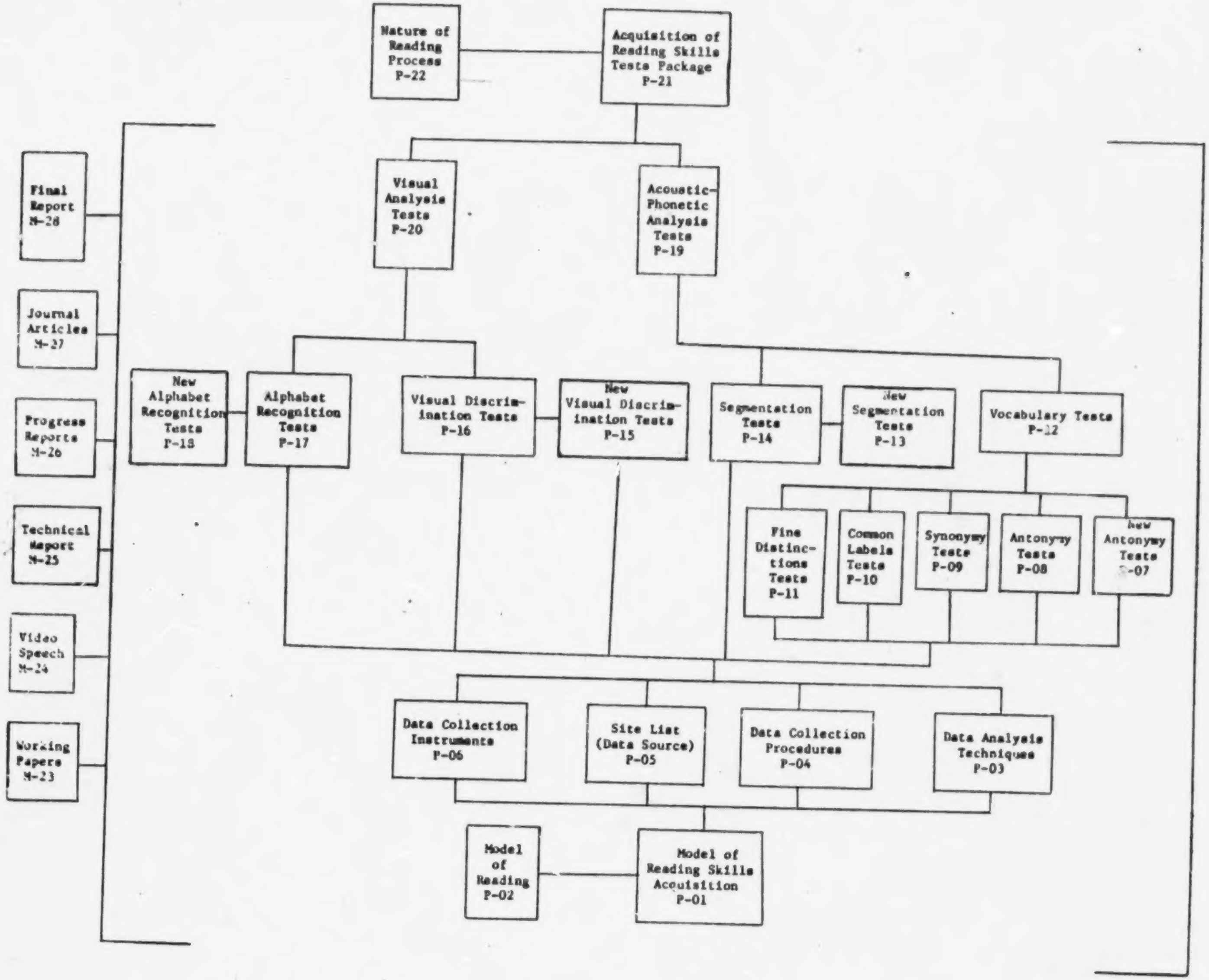
Nature of Reading Process P-22
Acquisition of Reading Skills Tests Package P-21
Visual Analysis Tests P-20
Acoustic-Phonetic Analysis Tests P-19
New Alphabet Recognition Tests P-18
Alphabet Recognition Tests P-17
Visual Discrimination Tests P-16
New Visual Discrimination Tests P-15
Segmentation Tests P-14
New Segmentation Tests P-13
Vocabulary Tests P-12
Fine Distinctions Tests P-11
Common Labels Tests P-10
Synonymy Tests P-09
Antonymy Tests P-08
New Antonymy Tests P-07
Data Collection Instruments P-06
Site List (Data Source) P-05
Data Collection Procedures P-04
Data Analysis Techniques P-03
Model of Reading P-02
Model of Reading Skills Acquisition P-01
Final Report M-28
Journal Articles M-27
Progress Reports M-26
Technical Report M-25
Video Speech M-24
Working Papers M-23

FIG. 4. Output map.

Chapter III: Summary of the Data

Interview data were gathered around the selected outputs described in Chapter II. The interviews sought to elicit for each output to be analyzed (a) the standards by which one judges the satisfactory completion of the output, (b) the tasks required to generate an output meeting those standards, and (c) the enablers (enablers being knowledges, skills, and sensitivities), which facilitate the carrying out of those tasks.

Within each category are a series or set of descriptive labels which are representative of interviewee statements (raw data) within a particular category. These descriptive labels are listed in the tables comprising this chapter under the category heading. In the process of reducing raw data, narrative interviewee statements (raw data) about an output were linked to one of the three major categories. Each narrative statement was then classified by means of a number code according to the most representative descriptive label within a given category or subcategory.

Each table provides the frequency with which interviewees cited specific statements (which are represented by the descriptive labels in the tables) of standards (Tables 3 and 4), tasks (Table 5) and enablers (Tables 6, 7, 8) in relation to the outputs that are listed.[1]

Acceptability and functionality are the most frequently cited output standards, as shown in Table 3. Only one management standard was identified, a favorable reaction to effort.

Tasks cited by the interviewees fell most frequently into the category of collecting and processing data, as can be seen in Table 4. Inasmuch as this is a research project, these data might be expected. The knowledges cited by the interviewees (Table 5) as being necessary for the performances of their tasks were categorized largely as RDD&E subjects. Incidentally, only one education course subject was cited, seemingly indicating that the learning required of the project staff members was largely acquired on the job (this inference was actually substantiated by statements to that effect by the interviewees).

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[1] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared on the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is only represented in the table by the descriptive label and its number coding.

The skills (Table 6) mentioned by the interviewees were varied; a slight emphasis was shown in the data regarding the mediation of interactions with people. Surprisingly enough, the more specialized skills (such as the ability to use certain kinds of equipment) were not mentioned very often.

More sensitivities (Table 7) were cited in connection with data collection procedures than with any other output. On the other hand, the interviewers were informed that certain sensitivities to the feelings, values, and concerns of the public school personnel with whom they cooperated was essential to the success of the project.

TABLE 3

Standards Cited for Each Output Analyzed

Project Outputs	Primary Categories of Standards									
	Output Oriented (category code no. and label for coding set J-1)								Process Oriented (category code no. and label for coding set J-2)	
No. Label	02 Quantity of outputs/data	04 Communication and clarity	07 Personal satisfaction/feeling	12 Goal attainment	13 Acceptancy by others (in proj)	18 Satisfactory appearance	22 Functions as planned	Output Totals	34 Impact of effort favorable	Output Totals
P-04 Data Collection Procedures	1	1	1	1	1		2	7	1	1
P-13 New Segmentation Tests					2	1	1	4		
P-15 New Visual Discrimination Tests			1		1		1	3		
P-21 Acquisition of Reading Skills Tests Package			1	1				2		
Category Totals	1	1	3	2	4	1	4	16	1	1

TABLE 4

Tasks Cited for Each Output Analyzed

Project Outputs No. Label	01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	26 Facilitating growth of staff	29 Facilitating relationships	31 Diffusing info within project	33 Effecting decision mechanisms	Output Totals
	Clusters of Tasks (cluster code no. and label for coding set NO)													
P-03 Data Analysis Techniques			1	2	6	2		1	1	3	1	1		18
P-04 Data Collection Procedures			1	3	11	1	1	1			8	1		27
P-13 New Segmentation Tests	1	2		5	10	5		3				1	1	28
P-15 New Visual Discrimination Tests	1	1	1	2	7			2						14
P-21 Acquisition of Reading Skills Tests Package	1	1			2	2			1			8		15
Cluster Totals	3	4	3	12	36	10	1	7	2	3	9	11	1	102

TABLE 5

Enabling Knowledges Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Knowledges (category code no. and label for coding set S-1)								
No.	Label	02 Subjects learned in courses	03 Subjects related to RDD&E	04 Technical/professional topics	05 Project focus topics, external	06 Project variables: external	08 Project operation: specific	21 Management techniques	22 Use of equipment/systems	Output Totals
P-03	Data Analysis Techniques	1	2	5						8
P-04	Data Collection Procedures		2			1		2		5
P-13	New Segmentation Tests		1		1	1	2		1	6
P-15	New Visual Discrimination Tests		2			2			1	5
P-21	Acquisition of Reading Skills Test Package		3							3
	Category Totals	1	10	5	1	4	2	2	2	27

TABLE 6

Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (category code no. and label for coding set S-2)									
No.	Label	01 Teaching	02 Facilitating people interactions	10 Analytical data handling	11 Disciplining self	18 Finding fits/integrating	19 Planning/conceptualizing	26 Locating/maintaining info	27 Using equipment/systems	34 Coordinating activities	Output Totals
P-03	Data Analysis Techniques	2		2	1		1				6
P-04	Data Collection Procedures		3						1		4
P-13	New Segmentation Tests	1	1		2		1	1			6
P-15	New Visual Discrimination Tests					1				1	2
P-21	Acquisition of Reading Skills Tests Package		1								1
	Category Totals	3	5	2	3	1	2	1	1	1	19

TABLE 7

Enabling Sensitivities for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Sensitivities (category code no. and label for coding set S-3)					
No.	Label	02 Capabilities and limitations	21 Limitations of analyses data	30 Response sets of tgt audiences	31 Nature/scope of outputs	44 Interested in activities	Output totals
P-04	Data Collection Procedures			1	1	1	3
P-13	New Segmentation Tests	1		1			2
P-15	New Visual Discrimination Tests					1	1
P-21	Acquisition of Reading Skills Tests Package		1				1
	Category Totals	1	1	2	1	2	7

Chapter IV: Supplementary Data

Included in this chapter are data about the classification of outputs, the backgrounds of project and agency personnel, and the job requirements for the project.

Classification of Outputs

Outputs may be categorized in many ways. Among these are classification by (a) Orientation (production or management), (b) Focus (research, development, diffusion, or evaluation), (c) Level (focal, component, or facilitating), and (d) Stage of completion. These four schema are represented in Table 8 for each output identified, with frequencies listed for each category.

Classifications of Output Characteristics

As the Oregon Studies evolved it became evident that outputs could be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, or production), (c) Level (focal, component, or facilitating), (d) Character (knowledge, technology, implementation, or information), and (e) Stage of Completion. These five schema are represented in Table 9 for each project output identified, with frequencies summarized for each category. Table 9 has been added to this profile subsequent to the profile's original writing.

Background of Project Personnel

The project's interviewed personnel are rather evenly distributed in age along a continuum from 20 to 40 years. Similarly, the interviewees hold a variety of degrees: bachelor's (2), master's (2), specialist's (1), and doctorate (1). Their specialities center mostly around different areas of psychology; that is, research, guidance/counseling, and statistics. However, their backgrounds are not really uniform inasmuch as at least one has engaged in a wide diversity of activities, including running a "free" university, logging, banking, and candlemaking. One of the staff is from South America and has done extensive work in the anthropology/sociology field.

Job Requirements

Most prominent among the job requirements cited by the interviewees were backgrounds in statistics, computer programming, and research design. A knowledge of reading, child development, and learning theory was also

TABLE 8

Classification of Outputs

Outputs		Category		
		Focus	Level	Stage of Completion
Production Oriented:				
P-01	Model of Reading Skills Acquisition	Development	Facilitating	Currently in progress
P-02	Model of Reading	Development	Facilitating	Currently in progress
P-03	Data Analysis Techniques	Development	Component	Completed
P-04	Data Collection Procedures	Development	Component	Completed
P-05	Site List (Data Source)	Development	Component	Completed
P-06	Data Collection Instruments	Development	Component	Completed
P-07	New Vocabulary Tests	Development	Component	Currently in progress
P-08	Antonymy Tests	Development	Component	Completed
P-09	Synonymy Tests	Development	Component	Completed
P-10	Common Labels Tests	Development	Component	Completed
P-11	Fine Distinction Tests	Development	Component	Completed
P-12	Vocabulary Tests	Development	Component	Completed
P-13	New Segmentation Tests	Development	Component	Currently in progress
P-14	Segmentation Tests	Development	Component	Completed
P-15	New Visual Discrimination Tests	Development	Component	Currently in progress
P-16	Visual Discrimination Tests	Development	Component	Completed
P-17	Alphabet Recognition Tests	Development	Component	Completed
P-18	New Alphabet Recognition Tests	Development	Component	Currently in progress
P-19	Acoustic-Phonic Analysis Tests	Development	Component	Completed
P-20	Visual Analysis Tests	Development	Component	Completed
P-21	Acquisition of Reading Skills Tests Package	Development	Focal	Currently in progress
P-22	Nature of Reading Process	Research	Focal	Currently in progress
Management Oriented:				
M-23	Working Papers	Development	Facilitating	Completed
M-24	Video Speech	Diffusion	Focal	Completed
M-25	Technical Report	Development	Focal	Currently in progress
M-26	Progress Report	Evaluation	Focal	Completed
M-27	Journal Articles	Evaluation	Focal	Currently in progress
M-28	Final Report	Evaluation	Focal	Not yet underway

Output Frequency Within Categories

Production Oriented - 22 Management Oriented - 6	Research - 1 Development - 23 Diffusion - 1 Evaluation - 3	Focal - 7 Component - 18 Facilitating - 3	Completed - 17 Currently in progress - 10 Not yet underway - 1

TABLE 9

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Model of Reading Skills Acquisition	X					X			X		X						X		
P-02	Model of Reading	X					X			X		X						X		
*P-03	Data Analysis Techniques	X				X				X		X			X					
*P-04	Data Collection Procedures	X				X				X		X				X				
P-05	Site List (Data Source)	X				X				X		X				X				
P-06	Data Collection Instruments	X					X		X			X			X					
P-07	New Antonymy Tests	X					X		X			X						X		
P-08	Antonymy Tests	X					X		X			X				X				
P-09	Synonymy Tests	X					X		X			X				X				
P-10	Common Labels Tests	X					X		X			X				X				
P-11	Fine Distinctions Tests	X					X		X			X				X				
P-12	Vocabulary Tests	X					X		X			X				X				
*P-13	New Segmentation Tests	X					X		X			X						X		
P-14	Segmentation Tests	X					X		X			X				X				
*P-15	New Visual Discrimination Tests	X					X		X			X						X		
P-16	Visual Discrimination Tests	X					X		X			X				X				
P-17	Alphabet Recognition Tests	X					X		X			X				X				
P-18	New Alphabet Recognition Tests	X					X		X			X						X		
P-19	Acoustic-Phonetic Analysis Tests	X					X		X			X				X				
P-20	Visual Analysis Tests	X					X		X			X				X				
*P-21	Acquisition of Reading Skills Test Package	X					X	X				X						X		
P-22	Nature of Reading Process	X					X	X			X							X		
M-23	Working Papers	X				X				X		X					X			
M-24	Video Speech		X			X				X						X				
M-25	Technical Report	X					X	X						X				X		
M-26	Progress Reports	X				X		X						X			X			
M-27	Journal Articles	X				X				X			X					X		
M-28	Final Report	X					X	X			X								X	
Classification Frequencies[b]		27	1	0	0	7	21	5	15	8	2	22	1	2	2	13	2	10	1	0

[a] The specific output characteristics are identified as follows:

Structure	Function	Level	Character	Completion Stage
p - product	ps - policy setting	f_1 - focal	k - knowledge	1 - completed over one year ago
e - event	m - management	c - component	t - technology	2 - completed 3 to 12 months ago
c - condition	p - production	f_2 - facilitating	i_1 - implementation	3 - completed within last 3 mos.
			i_2 - information	4 - currently in progress
				5 - not yet underway
				6 - on going (continuous)

---

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

mentioned by most of the interviewees. These findings were predictable inasmuch as the project's primary focus is almost entirely upon research. Not many specific skills were cited as being requirements for the several project jobs, though. One mentioned skills of analysis, synthesis, and observation. Techniques such as analysis of covariance were also cited, as well as some general human relations skills about dealing effectively with others.

Chapter V: Project Dynamics

This project, through its concern with investigating the perceptual and memory components in reading, is typical, in some ways, of the kind of research carried on by psychologists in studying behavior. Although this type of research is termed "basic," it has direct application to the classroom and thus has overtones of the "applied" kind of research conducted by regional laboratories. The background of the Project Director inclines him to undertake research in which variables are carefully controlled and data yielded are amenable to rigorous statistical analysis. Therefore, the character of the research activities in this project is analogous to that which might be found in studies of animal behavior, but it is flavored by a linguistic approach and by an expressed need to provide information which will help children learn to read more readily when they enter school.

It should be noted that the manner in which the research is conducted would make it difficult to carry out in any other setting than that of a university. Graduate students and other individuals at the university are depended upon to perform a number of tasks and services that elsewhere would be difficult to undertake with the present level of funding. Many people who work directly or indirectly on the project are unpaid. Their reward comes in the form of experience which they consider to be invaluable. The exchange of services for experience seems to be acceptable to everyone concerned.

Interrelationships

During the time in which the interviewing team was onsite the Project Director had a party at his home honoring the presence of a researcher from another institution. That person was a featured speaker at one of the biweekly seminars serving to keep project personnel and interested persons informed about a variety of activities related to the research being conducted by the Project Director and others.

Interrelationships among project and agency. The university provides the setting and personnel for the project. The Director of the project has recently been promoted to the rank of full professor of education and psychology. Most of his staff, however, are supported not by the university but by funds from his projects. The university provides office space for the Director and his two secretaries (one full time and one half time), and storage space for some of the materials and equipment of the project. One-half of a duplex is rented from the university with funds from the project.

The bulk of the project personnel are graduate students of the university. There are some working on the project who are not officially enrolled as students. Some are paid for their efforts, but many become involved in experiments and substudies of the project and are not paid. They benefit from engaging in the research, gaining valuable experience through processing and analyzing data. Students of the Director (enrolled in his graduate classes) who are interested in acquiring knowledge of computer techniques and data analysis are given portions of the data coming in from this project to order, process, and analyze. Their findings and interpretations are carefully reviewed by the Director and his assistants.

By the nature of the project's relationships with the university, the makeup of the project's staff varies, but their activities will not deviate greatly from those being carried on at the time of our visitation. (This is the Director's wish and he says he will see that no one goes too far afield from the work in language acquisition.)

Interrelationships among project and sponsoring agency. This project is nearing the end of its first year of funding. The project was not, however, intended to be a one-year affair and is being funded for the coming year for about the same amount. Communications with the sponsoring agency are conducted via the mails and telephone.

Interrelationships among personnel and director. Undoubtedly the influence of the Director is everywhere--in the attitudes, actions, and interrelationships of the project personnel. His beliefs and policies concerning experimentation, computer utilization, learning, reading, and life in general pervade the atmosphere. For example, his policy of utilizing the computer to assist in data processing is basic to the thinking of personnel when they design an experiment or plan a phase of the project. He views the computer as a tool for reducing work and permitting the staff to do things they otherwise could not do.

Interrelationships among director and persons outside the project. The Project Director became acquainted with a linguist when completing his doctoral studies several years ago. They worked together at the same university and while there received a small grant for the purpose of investigating the cognitive skills of children which are related to reading. Since that time the two have "maintained very close contact with each other and in a real sense are collaborators" in the work that the linguist does and the research undertaken by the Project Director, even though they are now located at different institutions.

Support Resources Used by Project Personnel

It would be hard to overemphasize the fact that the university's computer center is available to the staff members on a 24-hour daily basis. At times, members of the project staff are working on statistical problems during the early hours of the morning. The Project Director and two members of the staff confer regularly with a consultant at the center, and apparently the understandings that have been gained from these meetings have benefited both parties.

Available to the staff members are printing facilities, secretarial services, audio-visual aids and devices, television facilities and equipment, desk calculators, a remote computer terminal, a videotape camera, a key-punch machine, and a data card sorter. In addition, the project has a very well-equipped mobile testing unit which can be moved from school to school. A recent addition to the technological resources of the project is a specially designed tachistoscope. All in all, the project benefits from the kinds of human and nonhuman resources afforded by its location at a university in a metropolitan area.

Chapter VI: Implications for Training

The Reading Skills Project provides an excellent opportunity to look at the responsibilities, tasks, and competencies of people engaged in a university-based research effort. The emphasis of this project is upon rigorous research design and computerized data processing. One might expect, then, that the recommendations for training offered by staff members would emphasize research design and skills in computer utilization and statistical techniques. The interviewees supported such a supposition. They cited experience in data collection (with real-life problems), interaction with computer advisors, graduate-level statistics courses, training in research and research design, and teaching experience as the proper preparation for their jobs.

In relation to the issue of criteria for hiring people, high standards of performance were stressed. The staff must possess "competence, motivation, enthusiasm, a willingness to go over and above the call of duty"; in addition they must work hard and be enthusiastic, for much more goes into being a researcher than statistics courses and familiarity with a computer.

Appendix

Appendix: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. These statements were extracted from discussions with interviewees and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J: Structure of Standards,

J-1 Standards against which outputs are judged. (output oriented)

J-2 Standards against which processes and/or operations are judged. (process oriented)

Code LM: Primary Categories of Standards.

TASKS

Code NO: Clusters of Tasks.

ENABLERS

Code S: Structure of Enablers.

S-1 Knowledge.

S-2 Skill or ability to perform.

S-3 Sensitivity or awareness.

Code UV: Primary Categories of Enablers (knowledges, skills, or sensitivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the five analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

P-03: Data Analysis Techniques

STANDARDS:

J LM No information collected under this heading.

TASKS:

NO	
03	Be sure in planning that the data will come out in a form which is workable and understandable.
05	Prepare a series of analysis displays of a subset of the data (histograms, scatter grams).
06	Make sure the data is as "clean" as possible by checking for outliers.
05	Apply preliminary computer programs so that data which are in balanced form are put into a fixed canonical form.
05	Apply two or three analyses of variance of subrecords for a given subject.
05	Do regression analyses of the data.
06	See what problems arise out of these analyses.
04	Find a "canned" computer program that fits the purposes of the research.
29	Work with text editor whenever necessary.
31	If canned program doesn't work right, get together with person (consultant) in charge of Bi-med package.
22	Give cards (data sets) to students who analyze the data.
05	See what questions are raised by the analyses and data themselves (which may lead to new attacks on the problems).
26	Discuss with students the kinds of analyses needed after the students are given data.
24	Check the students' analyses of data.
26	Give directions to students in how to apply statistical procedures to problems.

ENABLERS:

S	UV	
1	02	Understands statistical methods.
1	03	Understands research design.
1	04	Know something about computers.
1	04	Know something about computer programming (FORTRAN).
1	04	Know interactive systems of computers.
2	10	Able to analyze data (test results).
2	10	Able to "build up controls" in handling the data.
2	19	Can use imagination in seeing possibilities of variables you can control for.
2	11	Can work for long periods of time on research problems.
1	04	Know sophisticated statistical procedures because of training received at university.
1	03	Know literature regarding data analysis.
1	04	Understanding of .computer programming.
2	01	Ability to train person to do test construction.
2	01	Ability to train people to do data analysis.

P-04: Data Collection Procedures

STANDARDS:

J	LM	
1	04	Understandability of test-taking task by children.
1	22	The children can perform the task.
1	02	Sufficient data is collected to get answers to research questions.
2	34	Some kids would come back to be tested again because they liked it so well until a schedule was developed to prevent that.
1	07	Feeling that the tests work.
1	22	Results of analyses of variance indicate differences.
1	12	Tests reveal problems to teachers.

TASKS:

NO	
29	Interface with school administrators (and socialize with Assistant Superintendent).
23	Make arrangements to go to a school and meet staff.
29	Meet with principal.

29	Meet with individual teachers and explain the study (and answer their questions).
29	Have trucking company bring testing trailer to school.
04	Outfit trailer with testing materials and attractive decor.
29	Meet with class of pupils in trailer to inform them of purposes of testing.
04	Get an electrical hookup for the trailer.
22	Assign two trained testers to go to school (i.e., the trailer) and test.
03	Bring in two children to engage in test (20-40 minutes).
06	Review tape recording of test proceedings to see if procedures were within certain bounds of standardization.
04	Go to the testing trailer at a school and prepare it for testing.
29	Take the kids out in small groups to look at the trailer, introduce what is being done, and meet them.
29	Sit down with the child to be tested and make some small talk.
05	Administer the tests according to a schedule following their respective instructions.
29	Break between tests to talk and let them use the tape recorder.
05	Complete formal test administration.
05	Administer own tests, if have any.
05	Fill out coded sheets at the trailer or at office from tapes and information provided by teacher.
05	Prepare a histogram of frequency of types of mistakes.
05	Key punch data from coded sheets.
05	Sort data reduction by hand according to school, condition (i.e., test given), and grade.
05	Run computer program by remote terminal to get summary card deck.
05	Interfile summary cards with child background cards using editor-processor-language on remote terminal.
05	Run program which prints out class summary report indicating the children's errors.
31	Deliver report to the teacher.
05	Run program to compute analysis of variance of the tests for differentiations.

ENABLERS:

S	UV	
1	03	Experience in experimentation (with animals).
1	21	Experience in business matters.
1	21	Experience as an administrator in a "free university."
2	02	Ability to apply "encounter group" techniques in getting along with people (e.g., to bring about consensus in a meeting).
3	31	Be sensitive to the differences in the tests.
2	27	Be able to use the computer (IBM 360/67, systems instructions and editor).
1	03	Know statistics, especially analysis of variance.
1	06	Be familiar with the problems of testing and teaching kindergarten children, from teaching background.
3	44	Interest in kids and learning process.

2	02	Be able to make a child comfortable by talking to him as a person.
3	30	Be sensitive to a child as a person and not as a "subject."
2	02	Be encouraging without being reinforcing.

P-13: New Segmentation Tests

STANDARDS:

J	LM	
1	13	Checked out as correct by test designer and director.
1	18	Symbols are properly spaced so that the child will not be confused by them.
1	13	Project Director's approval based on (a) intuition (b) statistical results
1	22	Test actually helps diagnose reading problems of kids.

TASKS:

NO	
02	Talk to Project Director to get instructions for developing the test.
04	Write part of the test as instructed.
31	Interact with Project Director regarding progress/ideas/additional instructions.
06	Examine the completed test to determine acceptability based on experience and idea desired.
04	Prepare visual materials for testing, i.e., draw masters for ditto reproduction.
23	Schedule trial testing of new test.
05	Administer the test following included directions.
05	Prepare scatter diagrams of results.
05	Check test results with colleagues for new ideas about how to make the test work.
06	Revise the test using the ideas generated.
06	Judge whether this test is acceptable for another trial (with Director).
23	Schedule a trial testing of the revised version.
05	Administer the test to the children following the directions.
05	Prepare a scatter diagram of test results for eyeball trend.
05	Check scatter diagram of test results for eyeball trend.
33	Determine to test on a larger population of children.
23	Schedule a school for testing the "finalized" test.

05	Administer the test as in the directions.
05	Code the results onto standardized coding sheets.
05	Key punch the data from the coding sheets.
05	Run analysis of variance program on data in the computer.
05	Look at computer output of analysis of variance to determine validity of test.
01	Read design memo by test designer.
06	Check through test designer's permutations sheets to make sure all permutations are there.
04	Cut up symbols of the synthetic into squares and lay out on master test form.
04	Take half sheets and whole sheets and put into plastic covers for child's use.
04	Make up the sheets into booklets.
06	See if symbols are correctly aligned (whether they are upright).

ENABLERS:

S	UV	
1	08	Familiarity with test format from writing previous tests.
1	03	Knowledges of research design from previous research job.
2	19	Ability to organize thoughts and ideas onto paper.
2	01	Experience in teaching.
3	30	Sensitivity to how children react to standardized tests and what bores them.
1	22	Know how to run cassette tape recorders.
3	02	Sensitivity to age level/capability of kids.
2	02	Skill in dealing with kids on individual basis.
2	11	Ability to work independently.
1	06	Knowledge of vocabulary/learning problems of kids.
1	05	Familiarity with test itself (from having given this type of test to children).
1	08	Familiarity with the type of test from having seen it in the "books" of other tests of the project.
2	26	Being able to find materials in the library (library skills).
2	11	Being able to perform tasks efficiently (on time).

P-15: New Visual Discrimination Tests

STANDARDS:

J	LM	
1	07	Feeling that the test gives the desired results.
1	13	Confirmation from Project Director that test is valid.
1	22	Results of analyses of variance indicates desired results.

TASKS:

NO	
02	Get an idea for some aspect of reading acquisition not previously tested.
01	Read lots of related materials and research.
03	Design the experiment (test) based on familiar or previous research designs.
04	Write the story associated with the test.
23	Solicit art work aid for visuals to fit the story.
04	Write the directions for administering the test.
05	Administer the test to a small group of kids after formal testing of well developed tests.
05	Analyze the results with Project Director to determine need for revision.
04	Make additional test sets to complete the experimental design.
23	Schedule students to take the test.
05	Administer the test.
05	Code the test results on standardized forms.
05	Key punch the data from the coded sheets.
05	Run analysis of variance program on the data.
05	Analyze from data.

ENABLERS:

S	UV	
1	03	Research background from school and the project.
1	06	Familiarity with problems of testing and teaching kindergarten kids.
1	06	Familiarity with Project Director's development of research designs from a broad question, but about which specific questions may be asked.
3	44	Interest in kids and the learning process.
2	34	Skill in putting together factors or variables that will affect your outcome.
2	18	Skill in identifying relevant dependent variables to say what you are looking for in a broad area and specific instances.
1	03	Knowledge of statistics, especially analyses of variances.
1	22	Knowledge of how to run "canned" program on the computer IBM 360/67 from remote terminal.

P-21: Acquisition of Reading Skills Tests Packages

STANDARDS:

J	LM	
1	12	Statistical significance is achieved (usually analysis of variance).
1	07	Satisfaction at having done a good job.

TASKS:

NO	
31	Meet with colleagues to discuss their work or problems.
31	Read materials and suggest ideas regarding problems.
05	Analyze data from various tests conducted by others.
01	Read publications related to work on the project.
31	Discuss design factors dependent upon particular code.
31	Make suggestions regarding experimental design.
31	Discuss the problems encountered in completing design.
31	Offer possible solutions based on experience in research and analysis.
31	Meet to discuss results of preliminary field trial.
06	Interpret results of preliminary field trail.
06	Discuss changes in design where necessitated.
24	Review design prior to field trial.
05	Interpret data results of field trial.

ENABLERS:

S	UV	
1	03	Know a lot about statistics-use and interpretation, especially analysis of variance.
1	03	Familiarity with research design--both theory and applicability.
2	02	Skill working with people effectively.
3	21	Sensitive to meanings of statistical information and their interpretations.
1	03	Know the field by studying its literature.

CASE PROFILE NO. 5

Written by
Norman H. Crowhurst

PROJECT TITLE: A Research Project to Determine the Student Acceptability and Learning Effectiveness of Microform Collections in Community Junior Colleges

(MICROFORM Project)

AN EDUCATIONAL RESEARCH PROJECT CONCERNED WITH: Creating and maintaining conditions favorable to the use of microformed material resources. The study will explore such variables as experience, man-machine interactions, accessibility, and the kind of information involved in the transaction. The study will also investigate the effects of microform utilization on student learning.

A PROJECT OF:
The American Association of Junior Colleges
One Dupont Circle, N.W.
Washington, D.C. 20036

This profile has been prepared according to

PROFILE FORMAT No. 1

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

The overview presents a brief synopsis of the Microform Project as an introduction. This is elaborated by a discussion of the objectives, rationale, and significance of the project and the context in which it operates.

Synopsis of the Project

Title: A Research Project to Determine the Student Acceptability and Learning Effectiveness of Microform Collections in Community Junior Colleges.

Responsible Institution: American Association of Junior Colleges.

Funding Source: U.S. Office of Education.

Funding Duration: June 1, 1970 to May 31, 1971. (12 months)

Observation Date: December 1970.

Present State of Development: Mid-Project.

RDD&E Focus of Project: Primarily educational research, with secondary foci on evaluation and diffusion.

Expected Outcomes:
1. Knowing about qualitative acceptability of microform as media in junior college settings, in four diverse pilot backgrounds.
2. Research design for extended study in project to follow pilot project.

Level of Funding and Duration: Medium-Low. (level 3 of 7 levels)

Agency Setting: An association of academic institutions, categorized as a university-based project site.

Staff Summary (current):	Professional	Support
Total Full Time Equivalence (man years):	2	1
Number of Personnel Assigned:	2	1

Professional Specialties of Staff: educational administration, educational research.

Objectives, Rationale, and Significance of the Project

The objective of the Microform Project is to determine the degree and quality of acceptability of various microform media in student populations, as compared with the traditional book or periodical copy which it is intended to replace. The study is also investigating the effect of microform utilization on student learning.

In the current project phase, initial answers to questions are being obtained from four diverse junior college locations. At the same time, research is being designed to extend the study to other junior colleges in a greater variety of settings. This extension of the study will be done through a subsequent project phase.

Project rationale is based upon evidence that application of microform media to junior college library collections could be economical in three ways:

1. A copy in one of these media is less expensive than a book or other hard copy publication.
2. Collections of microform copies require far less storage space than hard copies.
3. Use of these media could lead to libraries that distribute, rather than circulate materials. Elimination of staff, equipment and facilities needed for checkout centers, media records, issue of overdue notices, fine collection and accounting, inventory for replacing lost items, and library monitoring against vandalism and thievery could result in considerable cost reduction.

These potential cost savings appear to make microform desirable economically. The unresolved questions are:

1. Will students in various groups use microform media?
2. Will they learn as well as from standard books and other publications?

Research currently being carried out involving small student populations in controlled environments is attempting to provide some data in relation to these questions. These experiments will have important implications for the development of microform media, but the questions of effectiveness and acceptability remain unanswered. These are felt to need a more comparable "real world" test, and it is these questions that the Microform Project addresses. It is not addressed to evaluating microforms as media, although a byproduct included in this profile will be the evaluation of hardware used and tested. Rather, the project addresses itself to the nature of the man-machine interactions that use of microform media involves in a variety of situations.

Context in Which the Project Operates

Relationship to other agencies. Shown in Figure 1 is the context within which this project operates. The American Association of Junior Colleges (AAJC), with headquarters in Washington, D.C., is considered the parent agency. Through AAJC the project has available various support resources, computer facilities, a public relations agency, and other support staff to be used as needed.

Verbal reports of project progress are made at regularly held AAJC staff meetings. Apart from this information-flow function and the reports required by the U.S. Office of Education (USOE) as the funding agency, the project apparently is autonomous in its control.

Outside groups with which this project is involved include:

1. Microform hardware manufacturers, who loan equipment to the project in return for information that may assist them in producing more suitable hardware.

2. An Advisory Committee consisting of people with expertise in various aspects of microform. These people provide needed information to the project personnel.

3. Four junior colleges selected as pilot locations for the study. Administrators, teachers, and librarians cooperate with the project in conducting the experiments and collecting data. Close liaison is maintained with these people.

Relationship to other efforts of an overall program. The project phase described in this profile represents a change in viewpoint as to the procedure to be adopted to achieve the overall, multiphase program objective. This project is considered as the second phase of that program. Until the end of Phase I the overall plan consisted of three phases. Phase I would identify bibliographies of texts in 20 subjects, and Phase II would serve mainly to plan the research and film the selected bibliographies (presumably from the listing already made) for the final phase. However, the first three month's work in Phase II, during the summer of 1970, led to the generation of new time lines representing a departure from the original plan. Phase II now selects pilot locations and conducts studies in those locations, and the summated results serve as the basis for the larger scale study to be conducted in Phase III. Phase IV, then, will include the final reporting of the study.

Although the project personnel see the whole program of four separately funded phases as one project, Phases III and IV are not yet guaranteed for funding. If Phase III fails to be funded, the project staff feel that the knowledge gained from Phase II will be limited in its usefulness. Phase II is proceeding on the assumption that the knowledge gained from this activity will fully justify the extension of the program into the planned Phase III.

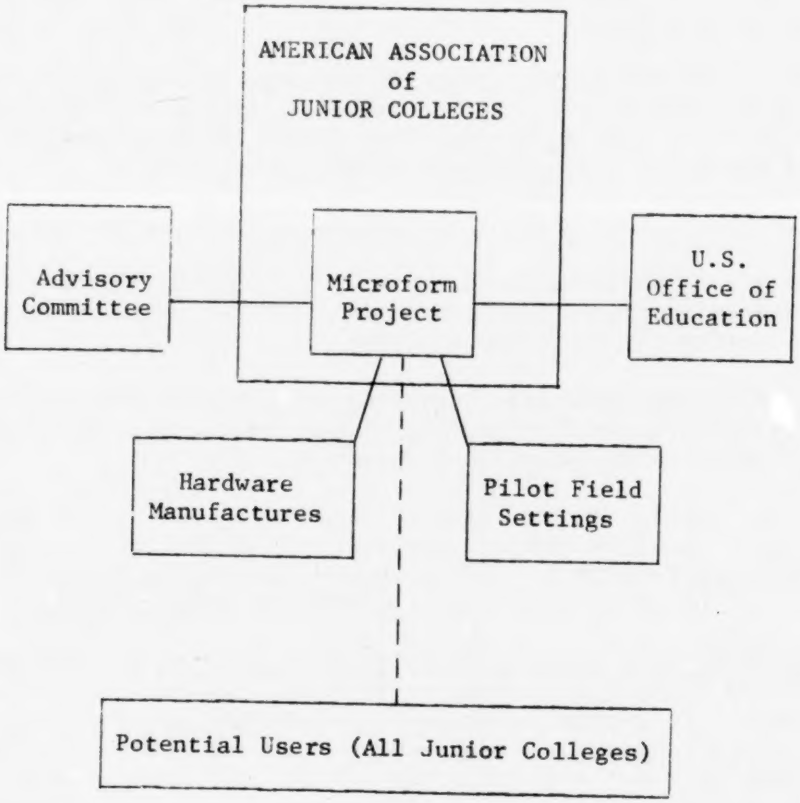
AMERICAN ASSOCIATION
of
JUNIOR COLLEGES
Advisory Committee
Microform Project
U.S. Office of Education
Hardware Manufactures
Pilot Field Settings
Potential Users (All Junior Colleges)

FIG. 1. Contextual map.

Time lines. The time line chart in Figure 2 was developed by the project in September 1970, and progress is very close to schedule. The only features identified as being slightly behind were two items assigned for December: (a) "Distribute equipment and materials," and (b) "Conduct workshops at schools--use of equipment." The reason for the delay is that final exams were taking place during December, and this made these activities inappropriate at that time.

Physical/environmental setting. Location of the project at AAJC's new headquarters building in Washington, D.C. provides ample work space in private offices. The agency provides all support services needed. Location in the nation's capitol results in a diversity of available junior colleges and subjects. It also means that adequate library and other facilities, beyond those directly involved within the project (which are converted to microform), are within easy reach.

	1970				1971				
	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Obtain bibliographies from teachers.	XXXXXX								
Visit manufacturers.	XXXXXX	XXXX							
Draw up contracts.	XXXXXX	XXXXXX							
Obtain permission from publishers.	XXX	XXXXXX							
Film materials.			XXXXXX						
Develop forms, scales, procedures.	XXXXXX	XXXXXX	XXXXXX						
Develop sampling plan for Phase III.	XXXXXX	XXXXXX	XXXXXX						
Meet with administrators and faculty at pilot schools.	XXXXXX	XXXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXX
Distribute equipment and materials.				XXXXX					
Conduct workshops at schools--use of equipment.				XXXXX					
Adjust contract and budget.	XXXXXX								
Reports to sponsor.	XX			XX			XX		
Publicity, public relations.	XXXXXX	XXXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXX
Professional meetings.	XXXXXX	XXXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXXX	XXXXX	XXXXX
Conduct pilot studies.					XXXXX	XXXXX	XXXXXX	XXXXX	XXXXX
Analyze data.						XXXXX	XXXXXX	XXXXX	XXXXX
Make final adjustments.								XXXXX	XXXXX
Select Phase III schools.								XXXXX	XXXXX
Meet with administrators, faculty members at Phase III schools.								XXXXX	XXXXX
Submit proposal for Phase III.						XXXXX			
Meet with Advisory Committee.			X						X

FIG. 2. Time lines

Chapter II: Parameters of the Project

This chapter discusses the staffing of the project and includes a description of the products and management responsibilities being generated.

Project Structure

Staff structure. The organizational structure within this project is represented in Figure 3. Both of the professional personnel on this project are assigned to it full time. Other supportive people, such as the Advisory Committee, microform manufacturers, and personnel within the pilot experiment locations, are not funded by this project.

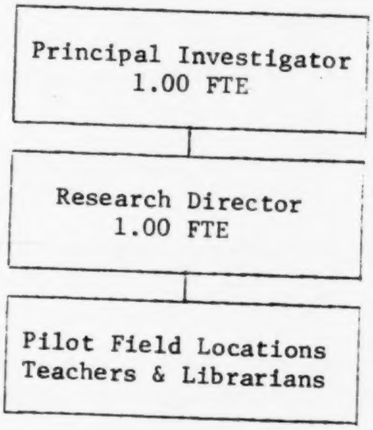

FIG. 3. Project organizational structure.

Project roster. The following staff members were interviewed for information about the project and about selected products of the project.

1. Principal Investigator and Project Director: The Project Director has previous management experience and has worked before with the Research Director.
2. Research Director: The Research Director is concerned with production operations. He has abilities in designing the kind of research required in this project.

Products Generated

Index of products. Nine products were identified in the observation of this project. All of these were discussed to the extent possible in view of the time of the interview team's intersection along the time line. These are:

P-01. Research Design for Pilot Studies. This is really a composite of four individual experiments to be conducted at junior college locations within the Washington, D.C. metropolitan area. It is seen as one design, however, because use of the four experiments together aim to maximize the coverage of variables. (Research focus)

P-02. Microformed Bibliographies. These are the actual microformed texts and other materials to be used in experiments outlined by P-01. (Development focus)

P-03. Publicity for project. The purpose of the project as a whole is to develop knowledge about the effective use of microform. For this to be effective, this knowledge needs diffusion. Knowledge that the project exists, with its objectives, provided by good publicity, anticipates a later diffusion need. (Diffusion focus)

P-04. Adequate Field Setting. This had to be found, and an adequate climate within each junior college supported by liaison, to implement the studies resulting from P-01. (Research focus)

P-05. Terminal Report. This is an initial dissemination of the knowledge acquired in this pilot activity. (Diffusion focus)

P-06. Phase III Proposal. Based on adquate results reported from the pilot phase, this will enable the study to extend on a much wider base. (Research focus)

P-07. Revised Research Design. This will be the base from which the extended study will be conducted. (Research focus)

P-08. Evaluation of Hardware. A byproduct of the work with hardware will be some data about the usability of various hardware in the context in which it is used for studies, or tested with a view to being used. (Evaluation focus)

P-09. Summation of Results of Pilot Studies. This will be a progressive collection of data from the studies, on which the results of P-05 and P-07 will be built. (Research focus)

Product tree. A graphic presentation of products is the product tree, of which Figure 4 presents the configuration as seen in the project addressed by this profile.

Management Responsibilities

In addition to the products shown in the Product Tree in Figure 4, other activities within a project concern management, of which two kinds may be distinguished in most projects; those that relate to generation of the products, beyond actual work on the products; and those that

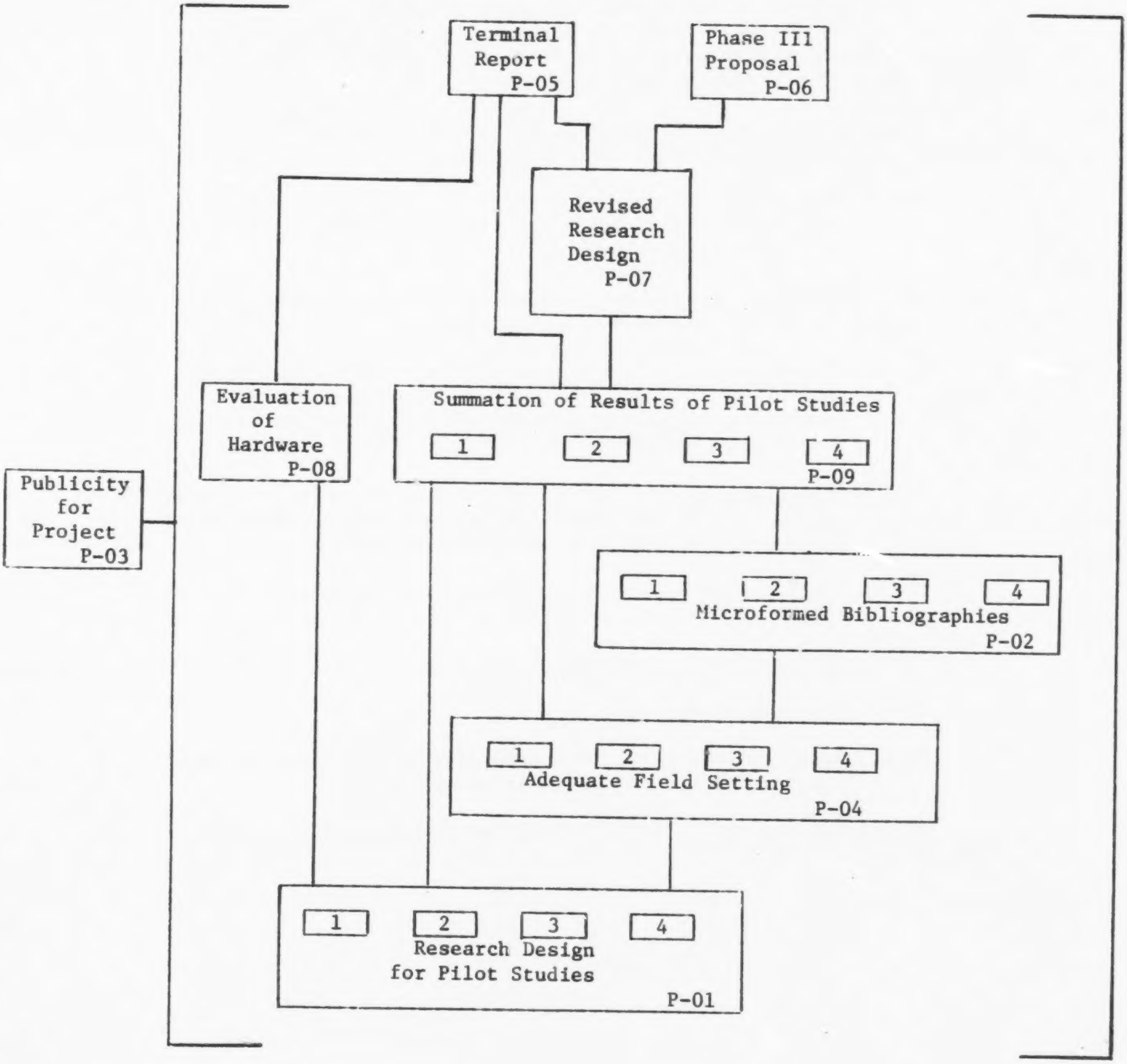
Terminal Report P-05
Phase III Proposal P-06
Revised Research Design P-07
Evaluation of Hardware P-08
Summation of Results of Pilot Studies
1
2
3
4
P-09
Publicity for Project P-03
1
2
3
4
Microformed Bibliographies
P-02
1
2
3
4
Adequate Field Setting
P-04
1
2
3
4
Research Design for Pilot Studies
P-01

FIG. 4. Product tree.

provide a work environment for the project.

In this project, the work environment is provided by the agency, so that all management within the project, except for the provision within the budget for a portion of overhead to meet the agency-provided environment, is production management.

Index of management responsibilities. The management responsibilities listed as items 10 through 17 are related to production management.

- PM-10. *Management of Money Resources*. To see that the objectives outlined on the project time line are fulfilled as a matter of fiscal responsibility.
- PM-11. *Adequate Staff*. The responsibility of providing people to fulfill the project commitments.
- PM-12. *Microform Hardware Acquisition*. This was a management responsibility that involved contact with hardware manufacturers and was significant in extending the material resources of the project. (See Chapter IV.)
- PM-13. *Work Assignments*. These principally are allocating work to suit individual staff preferences and to assure that all time line tasks are fulfilled on schedule.
- PM-14. *Project Time Lines*. This involves relating time as a resource with money, material, and work resources.
- PM-15. *Information Dissemination*. This relates closely with P-03.
- PM-16. *Management Decisions*.
- PM-17. *Advisory Committee*. Arranging for these people to meet as appropriate for the needs of the project.

Management network. The relationships of management responsibilities are presented in Figure 5.

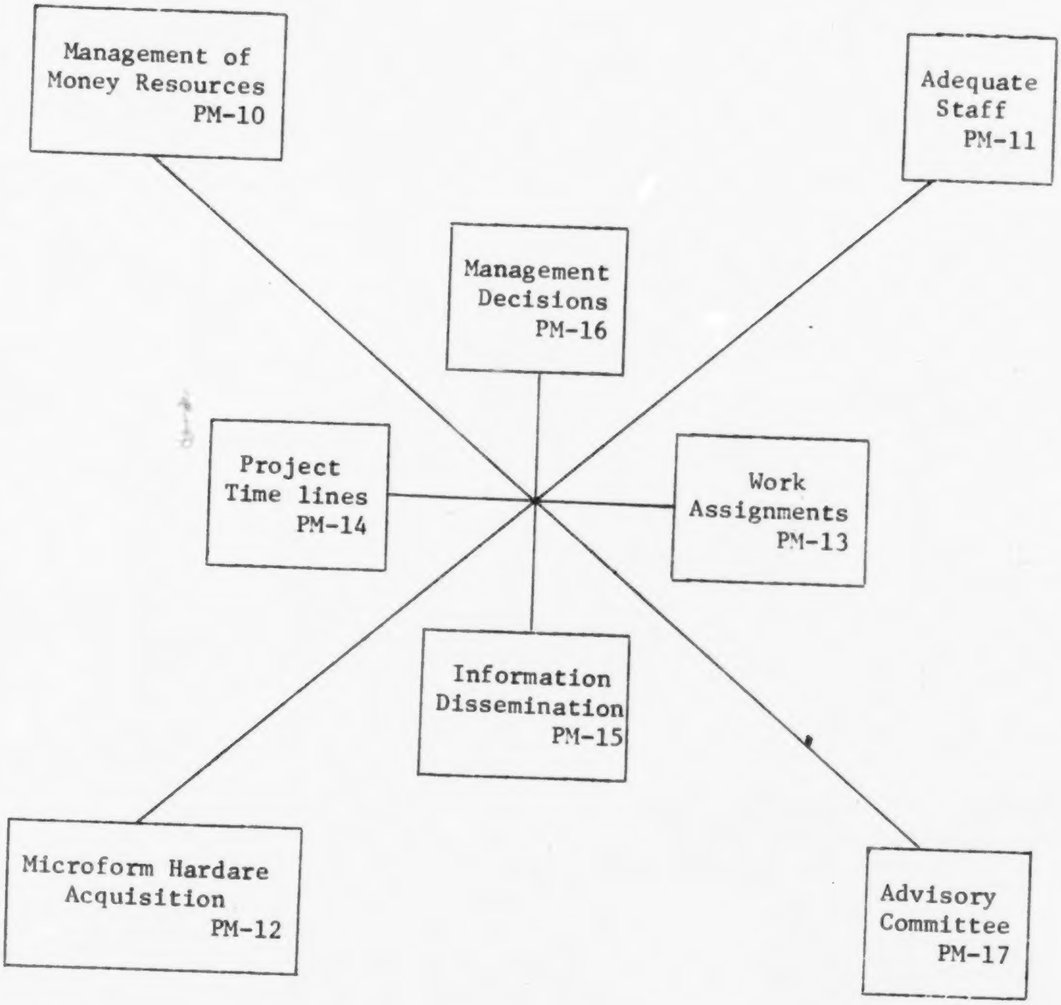
Management of Money Resources PM-10
Adequate Staff PM-11
Management Decisions PM-16
Project Time lines PM-14
Work Assignments PM-13
Information Dissemination PM-15
Microform Hardare Acquisition PM-12
Advisory Committee PM-17

FIG. 5. Management network.

Chapter III: Details on Each Production Responsibility

This chapter lists the major products encountered in observing this project and the activities involved in producing them. These products consist of identifiable major components toward the end product for which the project is committed. They do not include management activities, which will be detailed in the next chapter.

Under each product heading will appear three subheadings:

1. The standards by which the product is judged or controlled.
2. The tasks involved in generating the product, in approximately the sequence in which they are performed.
3. The enablers necessary for generating the product, in the form of knowledges, skills, and sensitivities.

Included within the product heading is the name of the product, its level, and its status at the time of observation. Product level refers to whether the product is focal, component, or facilitating in nature. A focal product is an expected contractual obligation to emerge from the project. A component product is an outcome of work effort constituting an element of or one step in the approximation to the focal product, and a facilitating product is an outcome of work effort supportive to the development of any other products.

Listing of Product Standards, Tasks, and Enablers

P-01: Research Design for Pilot Studies
Level: Facilitating
Status: Completed

Product Standards:

1. Criteria to be measured are relevant to project objectives.
2. All variables are covered to extent known at present.
3. Complete coverage of potential interrelations between relevant factors.
4. All available information, from all known sources, is utilized.
5. The courses chosen enable the desired parameters to be tested.

Production Tasks:

1. Read Phase I material to identify objectives of research.

2. Review literature for reports of related research.
3. Study related research for methods employed.
4. Familiarize self with the specific properties of various microform modes.[1]
5. Identify factors, modes, and variables relevant to the research.
6. Study the differences between hardware for significance relative to mode of use.
7. Identify probable relevant interrelationships between microform modes and subject-related use factors.
8. Define tests suitable for study of variables.
9. Specify where continuous measures are desirable.
10. Study the variables for possible interactions to be tested.
11. Evolve ways to isolate contaminating variables.
12. Select schools and teachers to suit experiments desired.
13. Identify modes most relevant to the four pilot experiment locations/populations.
14. Select appropriate courses and teachers to suit variables.
15. Determine relevant variables to test different student populations.
16. Correlate choice of variables with locations of populations.
17. Design and fit automatic timing devices to equipment to meter student use.
18. Develop attitude measuring instrument to measure acceptance.
19. Develop forced-choice instrument to measure acceptance.
20. Adapt instruments to be used to each selected location.

Tasks 1 through 11 are devoted to acquainting the researcher with the precise nature of the problems or questions to which this project must address itself. Tasks 12 through 20 address themselves more specifically to the field locations in which the pilot studies will be conducted.

Enablers of Production:

1. Knowledge of junior college context and way students work.
2. Knowledge of relationship between other work reported and junior college usage.
3. Knowledge of routines and usage possible within junior college setting.
4. Knowledge of relationship of media variables to material for which they are usable.
5. Knowledge of comprehensive information about current (latest) hardware with media software available.
6. Knowledge of research principles applicable to kinds of knowledge sought by project.

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[1] As used on this project, "modes" has reference to differences that reflect in how the information is stored and retrieved, as well as quantity of information stored in each unit of software, rather than to mechanical differences in the equipment itself.

7. Knowledge of relationship of the sampling used to the location.
8. Skill in method of approach to problems involved with designing valid research.
9. Skill in recognizing properties of media relevant to possible uses in project context.
10. Skill in planning collection methods relevant to purpose of research.
11. Sensitivity to need experienced by student for which microform is adaptable.
12. Sensitivity to objectivity about purpose to be served by media (microform).
13. Sensitivity to applicability of different microform modes to user needs.
14. Sensitivity to possible ways that different classes of students could interact with media.
15. Sensitivity to how users (i.e. students and teachers) interact with various media.
16. Sensitivity to need to avoid freezing in time, by providing openings for update.
17. Sensitivity to attitudes and activities of typical junior college students of various classes.

P-02: Microformed Bibliographies
Level: Facilitating
Status: Currently in progress

Having formulated the design for the experiments to be conducted at the field locations, and having identified the courses and teachers to participate in the tests, the necessary types of hardware and software to conduct the experiments must be provided to the junior colleges involved. The teachers provided the information about the text and other printed materials normally used in these courses, some or all of which had to be provided in one or another type of microform for the purposes of the experiment. This product consists of the complete set of microform materials (software) necessary for the pilot phase of this study.

Product Standards:

1. Permission granted to use material (copyright releases were obtained).
2. Advisory Council approves of commercial companies selected.
3. Informal judgment that the company's work conformed to quality specifications.
4. Work was delivered on time.

5. Production costs did not exceed agreed upon price.

Production Tasks:

1. Review course bibliographies and teaching materials to determine publisher information.
2. Interact with attorney to insure compliance with all copyright laws.
3. Write to publishers to obtain permission to reproduce materials in microform.
4. Obtain copyright permission from publishers and original authors/holders.
5. Study advertisements to determine producers of microforms.
6. Write to producers to obtain samples of their work.
7. Informally judge the quality of samples of producer's work.
8. Select production companies on basis of their capabilities and work quality.
9. Study research design to identify specifications and requirements.
10. Write and/or illustrate specifications for guiding producers.
11. Purchase copies of materials from publisher or dealer for actual use in microforming.
12. Get films made of selected sequences by subcontractor.
13. Evaluate first print of material by studying quality on microform reader.
14. Key microformed materials to bibliographies (indexing).
15. Package microforms as required by the research design.
16. Direct producer to mass produce in required quantity.
17. Authorize payment to producer upon delivery of required quantity.
18. Authorize payment to producer upon delivery of required quantity of adequate quality product.

Tasks 1 through 11 above relate to necessary preparation and selection for getting microforms made. Tasks 12 through 18 relate to obtaining quality microforms for use.

Enablers of Production:

1. Knowledge of project objectives.
2. Knowledge of technical details and specifications of research design.
3. Knowledge of types of microforms available commercially.
4. Knowledge of types of microform reading equipment available commercially.
5. Knowledge of copyright law.
6. Knowledge of publisher's constraints and concerns about releasing materials for reproduction.
7. Knowledge of costs involved in relation to microform production.
8. Knowledge of funds available for microform production.
9. Knowledge of technical details of microform production (extreme

photographic reduction).
10. Skill in writing specifications clearly.
11. Skill in persuading publishers to release materials for microform reproduction.
12. Skill in tracking copyright holders of original text, favorable approach.
13. Skill in maintaining good working relations with commercial producers.
14. Sensitivity to commercial jargon and technical terminology so as to facilitate communication.
15. Sensitivity to avoiding time entrapment by extenuating circumstances.
16. Sensitivity to possible delivery time slippages when dealing with unknown companies.
17. Sensitivity to a publisher's possible gains and/or losses if he releases his copyright.
18. Sensitivity to producer's concern with competitive aspects of business.
19. Sensitivity to producer's necessity of making a profit.

P-03: Publicity for Project
Level: Facilitating
Status: Ongoing

This product has no direct connection with other products of this project, yet it is seen as essential to the ultimate success of the purpose for which the project came into being. On the negative side, people tend to have a resistance to innovation, and microforms are definitely a new set of media. On the positive side, being aware of innovation that is going on, and of progress in it, should augment a feeling of being "part of it." Thus, keeping people informed of progress should build ultimate support for the use of microform and of the results of the project.

Product Standards:

1. Responses from people learning about project shows articles had effect.
2. Receipt of positive responses resulting from publicity efforts.
3. Word about project passed on to others.
4. Receipt of requests to repeat formal presentations of project activities.

Production Tasks:

1. Report project information to school administrators informally

to maintain cooperative atmosphere.
2. Write news releases to give visibility to project.
3. Write professional papers on project related subjects to disseminate findings.
4. Write one-page project description for agency to disseminate.
5. Provide information to agency public relations office upon request.
6. Make formal presentations at professional meetings.
7. Distribute project results through ERIC documentation.
8. Consult and interact with people interested in project.

Enablers of Production:

1. Skill in journalistic and professional writing.
2. Skill in ability to write to suit intended audience.
3. Skill in public speaking.
4. Sensitivity to an obligation to keep cooperating schools informed.
5. Sensitivity to terminology which is meaningful to audience.
6. Sensitivity to interact favorably with people.
7. Sensitivity to being impartial by refraining from employing certain product names.

P-04: Adequate Field Setting
Level: Facilitating
Status: Currently in progress

As was commented upon in Chapter III, the presentation of products in a "tree" form does not tell completely the relationships in this project. To some extent the pilot field setting locations were chosen on the basis of the research design. At the same time, the research design, especially in the details to be explored at the four individual locations selected under this heading, was determined by the locations chosen. This was done in terms of student population, kinds of course provided, economic background of the junior college, etc.

A comment made by the Research Director was that the four locations chosen provided a basis for comparison across more variables than one would normally hope for from such a small sample: private vs. public, well-funded vs. lower economic status, and different kinds of student population on several different dimensions.

However, while such a selection provided basis for a pilot study, securing an adequate field setting therein involved ensuring that good cooperation was achieved along the various dimensions involved.

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Product Standards:

1. All design parameters for field settings are acceptably fulfilled.
2. Administrators in field settings authorize cooperation from their staffs.
3. Teachers and librarians agree to cooperate.
4. Teachers and librarians produce work required of them.
5. Field setting atmosphere indicates enthusiasm on part of workers.
6. All required data is obtained.

Production Tasks:

1. Study project objectives and research design to determine characteristics needed in field setting.
2. Consider possible field settings in relation to distance, liaison needed, and money available for travel.
3. Select as field sites those that meet design requirements and budget limitations.
4. Study hierarchy within each junior college selected for field setting.
5. Personally contact each appropriate administrative level in field setting for cooperation and further contact.
6. Persuade teachers and librarians to cooperate, without pay, in data gathering and providing appropriate setting.
7. Explain work required of teachers and librarians in gathering data and providing appropriate setting.
8. Visit with cooperating teachers and librarians frequently to maintain cooperative atmosphere.
9. Report to administrators frequently to maintain cooperative atmosphere within the junior college.
10. Release publicity about participating colleges to give visibility to their effort.
11. Administer data-gathering instruments in field setting.
12. Study records of data gathered by teachers and librarians.
13. Record course grades in appropriate data storage form.

In general, Tasks 1 through 4 above relate to selection, Tasks 5 through 13 to establishing and maintaining an adequate setting with the locations selected.

Enablers of Production:

1. Knowledge of project and research objectives.
2. Knowledge of general nature of work performed in cooperating junior colleges.
3. Knowledge of hierarchy of personnel positions in each junior college being considered as a field setting.
4. Knowledge of teachers' and librarians' normal workload and kind of work.
5. Skill in communicating in terms relevant to teachers' and librarians' work.

6. Skill in administering attitude scales.
7. Sensitivity to differences in junior colleges (e.g., financial backing, political urban vs. rural, etc.).
8. Sensitivity to teachers' and librarians' normal workload, operational constraints, and problems.

P-05: Terminal Report
Level: Focal
Status: Not yet started

Product Standards:

1. Report appears to comply with style manual of the funding sponsor.
2. Favorable comparison with progress reports.
3. Favorable comparison with other research reports obtained from ERIC.
4. Acceptance (approval) by project officer of funding sponsor.

Production Tasks:

1. Draft administrative portion of report to include sequence of events and financial statements.
2. Select portions of quarterly reports to be included in final report.
3. Interact with other staff in drafting portion of report dealing with field setting.
4. Review segments of report drafted by other staff for accuracy and clarity.
5. Review entire draft for content and sequence.

Enablers of Production:

1. Knowledge of style manual guidelines of the funding sponsor.
2. Knowledge of contract terms and project objectives.
3. Skill in clearly and concisely presenting findings.
4. Sensitivity to funding agency's reaction to progess reports.

P-06: Phase III Proposal
Level: Focal
Status: Not yet started

Product Standards:

1. Advisory Committee approves scope, purposes, and procedures of proposal.
2. Personal judgment that stated qualifications will provide performance that can meet objectives.
3. Personal judgment that demands as found in pilot studies have been adequately accounted for in proposal.

Production Tasks:

1. Consider the fragmentary (initial) results from current field tests in establishing parameters of proposal.
2. Envision primary staff requirements in light of proposed objectives.
3. Envision personal contacts that will be required to obtain all required staff.
4. State qualifications of and name currently available staff.
5. State qualifications of staff to be obtained.
6. State numbers of staff to be obtained.
7. Confer with staff to agree upon objectives to be proposed.
8. Make alternate research plans based on possible variations in findings in Phase II (current project).
9. Project proposed budget to reflect all probable alternate research designs.
10. Envision secondary staff requirements (nonpaid staff) in field settings in light of proposed objectives.
11. Consider equipment required to meet proposed objectives and alternate designs.

Enablers of Production:

1. Knowledge of new equipment coming on market that will be appropriate to proposed effort.
2. Knowledge of direction of results being obtained from current field tests.
3. Knowledge of equipment currently available from commercial sources.
4. Knowledge of materials (software) currently used in subject matter.
5. Knowledge of normal office overhead (operating) expenses.
6. Skill in projecting (visualizing) costs over project duration.
7. Skill in clear, concise written presentation.

8. Skill in stating objectives relative to research.
9. Skill in visualizing possible scope of efforts in relation to staff, money, and time.
10. Sensitivity to the categorization of problem areas for budgeting purposes.
11. Sensitivity to the degree of cooperation that can be relied upon from volunteer effort.
12. Sensitivity to workable spans of control within proposed project organization.
13. Sensitivity to responsive organizational patterns for proposed project.

P-07: Revised Research Design
Level: Focal
Status: Not yet started

This is presented here as a separate product entity, mainly because at the end of Phase II it is anticipated that a research design for Phase III will exist that is noticeably different--even if only because it extends to a greater number of field-setting locations, but probably in much more than that--from the design that existed at the beginning of the pilot studies.

However, it is not strictly accurate to view this as a separate product--the tasks for which only commence after the conclusion of the pilot studies. A more accurate view, but one that is not as easy to show against the concept of completed products (or tasks, for that matter), would be of a research design that is always complete to the minute of observation.

In fact, in interrogating around P-01 and P-07, there was some difficulty in keeping the distinction clear, because of this continuous-update viewpoint. On the other hand, experiments conducted at the various field settings must adhere to the plans made for them, so the design does not change continuously in that sense. With this in mind, the following catalogue listing should be read as a set of tasks which to some extent are going on all through the conducting of the field studies, but which are only finalized after the studies are complete.

Product Standards:

1. Test instrument produces reliable results.
2. Results from different test locations are consistent.

Production Tasks:

1. Receive and classify responses from pilot tests.
2. Develop improved forced-choice questions on basis of experience.
3. Plan cross-section (population, distribution) for Phase III.
4. Select suitable locations for Phase III plan.
5. Devise training procedures for Phase III locations.

Enablers of Production:

1. Knowledge of quantities in project having a need for measurement.
2. Skill in relating the tests devised to the needs identified.
3. Skill in selecting and sorting results for relevance to test.
4. Sensitivity to acceptance of potential limitations of student ability or readiness to respond.
5. Sensitivity to have preparations in hand for avoiding time entrapment.
6. Sensitivity to the relative value or reliability of results obtained from data.

P-08: Evaluation of Hardware
Level: Facilitating
Status: Ongoing

A wide variety of hardware is available, with more coming on the market all the time. Microform comes in a variety of media: reel, card, fiche and ultrafiche, with various methods of handling the frame selection, and different degrees of reduction and corresponding magnification for reading.

Product Standards:

1. Consistent results of test (microform easily readable).

Production Tasks:

1. Test out various hardware with software with which used.

Enablers of Production:

1. Knowledge of method of using hardware with particular software.

2. Skill in uses of microform applicable to junior college setting.
3. Sensitivity to ways in which students may use hardware.

P-09: Summation of Results of Pilot Studies
Level: Component
Status: Not yet started

Referring to the preceding comments made about P-07, similar comments apply here. Primarily, as shown by the "tree" arrangement, the cumulative results from the pilot studies will be used to influence the revised design for Phase III. Results from each test will be collated and analyzed, before any conclusions are drawn. But the relative compactness and close working relationships between the project staff and the cooperating field locations means that obvious type reactions can have effect much more quickly than merely as final feedback to influence the next phase.

Thus, the summative effect of the pilot studies are seen as cumulative to build a far more reliable research design, or one that takes advantage of all the possible knowledge generated from Phase II, to be used in Phase III.

Product Standards:

1. Consistency of results across four test locations.
2. Deviation in results traceable to effect of variables.

Production Tasks:

1. Conduct cross-check between results of different tests at different levels.
2. Receive results of tests and collate for analysis.
3. Determine significance of collated analyzed results.

Enablers of Production:

1. Knowledge of methods of test pertinent to comparisons required.
2. Knowledge of local environment where tests are conducted.
3. Knowledge of relative degrees of skill for different classes of students.
4. Skill in discerning whether the equipment used is adapted to student skill.
5. Skill in discerning whether the equipment is used to best advantage for purpose.

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6. Skill in discerning whether the presentation used optimizes use of media.
7. Sensitivity to how various students react to use of equipment.
8. Sensitivity to interactions between machine and student involved.

Summaries of Product Data

The following tables summarize the product data by categories of standards, tasks, knowledges, skills, and sensitivities. These tables tally the number of times an item of interview information was cited within each data set. Table 1 shows how often product standards were cited. Data relating to products is presented in this chapter, while data relating to production management will appear in Chapter IV. Due to modification of the data entry method used, which was in the process of revision when this profile was prepared, the knowledges, skills, and sensitivities of management outcomes were not separated from the set for products, so they are listed here together.

In these listings all established categories are shown. Some of these categories were not applicable to the interview data collected for this project. Thus, these categories receive a "zero" in the listing.

Relative to Table 2, an emphasis can be noted for production tasks related to identifying and clarifying the problem to be addressed, designing the product (principally producing the specifications for the research design, at the stage being observed), and producing the product.

Relative to Table 3, the strong emphasis is on knowledge of various aspects of situation external to the project, which extends along each of the directions enumerated: the nature of microform equipment and its use, the environment in which it will be used (junior colleges), and the people concerned with these things.

Relative to Table 4, the concentrations of skills are on various forms of writing and the recognition of relevance or fit.

Relative to Table 5, the most frequently cited category of sensitivity is that of capabilities and limitations or constraints of both self and others. Second to this comes an awareness of structure in approaches to the problem to be solved: research principles.

TABLE 1

Frequencies of Citation of Production Standards in each Production Standards Category

Categories of Product Standards	Frequency of Citation
Completeness in terms of content dimensions sought	5
Quantity of products/data produced	0
Quantity of effort expended	0
Communication and clarity	0
Utility or value of product	0
Acceptance by users of product	0
Personal satisfaction or feeling	0
Agreement or concurrence with others	2
Lack of identificable errors/discrepancies/ omissions	2
Obvious (direct) termination	3
Appropriateness of design	1
Goal attainment (meets known requirements)	0
Acceptance of product by others (editor, supervisor, i.e., project personnel)	0
Acceptance of product by sponsor	1
Compliance of product with sponsor guidelines	1
Favorable comparison with other products	2
Consistency of structure/content within product	2
Satisfactory appearance of product (clean, neat, legible)	2
Criteria factors logically related to objectives	1
Consistency in product performance	2
Identifiable sources of variance in data have been controlled	1
Product functioned as planned	0
Successfully constrains implementation/ production	0
Total Number of Product Standards Cited	25

TABLE 2

Frequencies of Citation of Production Tasks in each Production Tasks Category

Categories of Production Tasks	Frequency of Citation
Tasks that relate to Identifying/Clarifying Problem to be Addressed	13
Tasks that relate to Formulating Objectives	1
Tasks that relate to Designing the Product (Specifications)	15
Tasks that relate to Producing the Product	14
Tasks that relate to Collecting/Preparing/Processing Data	6
Tasks that relate to Assessing the Quality of the Product	5
Tasks that relate to Diffusing the Product	1
Total Number of Production Tasks Cited	55

TABLE 3

Frequencies of Citation of Knowledges in each Knowledges Category

Categories of Knowledges	Frequency of Citation
Standard School subjects (e.g., math, English, etc.)	0
Subjects normally learned in education courses (e.g., teaching methods, educational measurement, etc.)	0
Subjects primarily related to RDD and/or E (e.g., interview techniques, experimental design, etc.)	3
Technical subjects (computers, electronics, automotive, etc.)	2
External project context: specifically related to the focus or purpose of the project	4
External project context: situational factors (e.g., current political emphases, etc.) - not directly related to focus of project	17
Generated within the project context: generally related to the overall project	5
Generated within the project context: specifically bearing on the project efforts or purpose	3
Operational details: Scheduling and Organizing	1
Operational details: Staff factors	0
Operational details: Fiscal factors	3
Resources: Personnel	1
Resources: Money	1
Resources: Time	0
Resources: Equipment	0
Guidelines set forth for reporting	1
Writing styles: Journalistic, professional, etc.	0
Staff competencies/interests	0
Technical terminology	0
Sponsor concerns	0
Management techniques	[illegible]
Total Number of Knowledges Cited	41

TABLE 4

Frequencies of Citation of Skills in each Skills Category

Categories of Skills	Frequency of Citation
Teaching	0
Mediation of people interactions	1
Mediation of subject material	0
Use of application of feedback	0
Programming of Project/Process events	2
Programming of subject matter presentation	1
Programming of technical equipment	0
Analytical skills in reading and study	0
Analytical skills in problem solving	1
Analytical skills in data handling	0
Self discipline	0
Disciplining others (e.g., meeting of deadlines, etc.)	0
Listening	0
Writing (style, vocabulary, conciseness, clarity, note taking, etc.)	8
Oral presentation	3
Using media	1
Interpreting language (jargon, etc.)	1
Recognition of relevance or fit	6
Planning/visualizing/conceptualizing/ organizing	3
Exercising judgment and making decisions	1
Maintenance of awareness of operations activities	0
Estimating expenses and/or resources required	2
Persuading	4
Explicating of objectives	1
Administering data gathering instruments	1
Locating sources of essential information	1
Using equipment/systems	0
Conducting task oriented meetings	0
Getting others to accomplish acceptable work (quality, rate)	0
Adaptation to situation	0
Placing yourself in another's frame or reference	0
Total Number of Skills Cited	37

TABLE 5

Frequencies of Citation of Sensitivities in each Sensitivities Category

Categories of Sensitivities	Frequency of Citation
Values of self and others	3
Capabilities and limitations/constraints, problems or self and others	9
Needs of self and others	2
Interactions of self and others	2
Context of subject matter	0
Values of subject matter	0
Context of objectives	1
Values of objectives	0
Awareness of alternatives	4
Awareness of structure	6
Awareness of method	1
As a catalyst/synthesizer	0
Language barriers (jargon, etc.)	2
Sense of reality in setting long range goals	2
Degrees of freedom to deviate from time lines, objectives, formats	2
Existing value systems which interact (political, religious, profit, etc.)	4
Personality characteristics of others	1
Potential conflicts of interest	3
Supportiveness required	0
Unstated obligations	1
Limitations of analyses of data	1
Target responses	2
Cost factors	0
Sources of error	0
Individual differences	0
Recognition of data needed	0
Acceptability of product appearance, tone, affect	0
Admitting mistakes, adapting to shortcomings	0
Willingness to experiment and hypothesize	0
Total Number of Sensitivities Cited	46

Interactions of Product Data

Tables 6 through 10 relate the categories of standards, tasks, knowledges, skills, and sensitivities to product focus. Again, the total available category codings are included in the listing, which accounts for complete lines of zeros appearing: those categories were not cited in the interviews on this project.

Table 6 shows the emphasis in standards on completeness in terms of content dimensions sought in research design. Other standards distribute across products of all foci.

Note in Table 7 that identifying the tasks related to and clarifying the problem to be addressed, and to designing the product specifications, relate to products with a research focus. Tasks related to producing the product and assessing product quality were distributed across research, development, and diffusion.

Table 8 shows the concentration of knowledge on this project to be related to products focused on research, with some development focus following up.

Table 9 puts the emphasis in skills on research, with a secondary emphasis in communication, principally by writing, on diffusion.

Table 10 emphasizes sensitivities in research.

In the context of coding specifc interview material for use in computer analyses, each identified product was labeled with respect to its primary focus (that is, whether it represented a product approximating one of the four focus definitions for "research," "development," "diffusion," and "evaluation." "Product focus" differs from "project focus" only in the sense of its relation to an outcome of effort rather than to a set of activities or efforts themselves. Such categorizing of products does permit a quick examination to be made of the relations that exist between information about products and the product types represented in the project. Other means of categorizing products are also available from analysis, but the simple coding of products by focus categories yields a format more suited to inclusion in a case profile at this time. The matrices of product information and product focus are tabled in this section to provide the reader with a first look at the data interrelationships available from the project interviews.

TABLE 6

Relation of Production Standards to Product Categories

Categories of Standards	Product Focus			
	Research	Development	Diffusion	Evaluation
Completeness in terms of content dimensions sought	5	0	0	0
Quantity of products/data produced	0	0	0	0
Quantity of effort expended	0	0	0	0
Communication and clarity	0	0	0	0
Utility or value of product	0	0	0	0
Acceptance by users of product	0	0	0	0
Personal satisfaction or feeling	0	0	0	0
Agreement or concurrence with others	1	1	0	0
Lack of identifiable errors/discrepancies/omissions	1	1	0	0
Obvious (direct) termination	2	1	0	0
Appropriateness of design	1	0	0	0
Goal attainment (meets known requirements)	0	0	0	0
Acceptance of product by others (editor, supervisor, i.e., project personnel)	0	0	1	0
Acceptance of product by sponsor	0	0	1	0
Compliance of product with sponsor guidelines	0	0	1	0
Favorable comparison with other products	0	0	2	0
Consistency of structure/content within product	2	0	0	0
Satisfactory appearance of product (clean, neat, legible)	1	0	0	1
Criteria factors logically related to objectives	1	0	0	0
Consistency in product performance	2	0	0	0
Identifiable sources of variance in data have been controlled	0	0	0	0
Product functioned as planned	0	0	0	0
Successfully constrains implementation/production	0	0	0	0
Total Standards per Product Focus	16	3	5	1

TABLE 7

Relation of Production Tasks
to Product Categories

Categories of Production Tasks	Product Focus			
	Research	Development	Diffusion	Evaluation
Tasks that relate to Identifying/ Clarifying Problem to be Addressed	12	1	0	0
Tasks that relate to Formulating Objectives	1	0	0	0
Tasks that relate to Designing the Product (Specifications)	13	2	0	0
Tasks that relate to Producing the Product	7	4	3	0
Tasks that relate to Collecting/ Preparing/Processing Data	6	0	0	0
Tasks that relate to Assessing the Quality of the Product	1	1	2	1
Tasks that relate to Diffusing the Product	0	0	1	0
Total Tasks per Product Focus	40	8	6	1

TABLE 8

Relation of Knowledges to Product Categories

Knowledges	Product Focus Research	Development	Diffusion	Evaluation
Standard school subjects (e.g., math, English, etc.)	0	0	0	0
Subjects normally learned in education courses (e.g., teaching methods, educational measurement, etc.)	0	0	0	0
Subjects primarily related to RDD and/or E (e.g., interview techniques, experimental design, etc.)	3	0	0	0
Technical subjects (computers, electronics, automotive, etc.)	1	0	0	1
External project context: specifically related to the focus or purpose of the project	2	2	0	0
External project context: situational factors (e.g., current political emphases, etc.) -- not directly related to focus of project	14	3	0	0
Generated within the project context: generally related to the overall project	3	1	1	0
Generated within the project context: specifically bearing on the project efforts or purpose	2	1	0	0
Operational details: Scheduling and Organizing	1	0	0	0
Operational details: Staff factors	0	0	0	0
Operational details: Fiscal factors	2	1	0	0
Resources: Personnel	1	0	0	0
Resources: Money	0	1	0	0
Resources: Time	0	0	0	0
Resources: Equipment	0	0	0	0
Guidelines set forth for reporting	0	0	1	0
Writing styles: Journalistic, professional, etc.	0	0	0	0
Staff competencies/interest	0	0	0	0
Technical terminology	0	0	0	0
Sponsor concerns	0	0	0	0
Management techniques	0	0	0	0
Total Knowledges per Product Focus	29	9	2	1

TABLE 9

Relation of Skills to Product Categories

Skills	Product Focus			
	Research	Development	Diffusion	Evaluation
Teaching	0	0	0	0
Mediation of people interactions	0	1	0	0
Mediation of subject material	0	0	0	0
Use of application of feedback	0	0	0	0
Programming of project/process events	2	0	0	0
Programming of subject matter presentation	1	0	0	0
Programming of technical equipment	0	0	0	0
Analytical skills in reading and study	0	0	0	0
Analytical skills in problem solving	1	0	0	0
Analytical skills in data handling	0	0	0	0
Self discipline	0	0	0	0
Disciplining others (e.g., meeting of deadlines, etc.)	0	0	0	0
Listening	0	0	0	0
Writing (style, vocabulary, conciseness, clarity, note taking, etc.)	2	1	5	0
Oral presentation	1	0	2	0
Using media	1	0	0	0
Interpretating language (jargon, etc.)	1	3	0	0
Recognition of relevance or fit	4	0	1	1
Planning/visualizing/conceptualizing/organizing	3	0	0	0
Exercising judgment and making decisions	1	0	0	0
Maintenance of awareness of operations and activities	0	0	0	0
Estimating expenses and/or resources required	2	0	0	0
Persuading	3	1	0	0
Explicating of objectives	1	0	0	0
Administering data gathering instruments	1	0	0	0
Locating sources of essential information	1	0	0	0
Using equipment/systems	0	0	0	0
Conducting task oriented meetings	0	0	0	0
Getting others to accomplish acceptable work (quality, rate)	0	0	0	0
Adaptation to situation	0	0	0	0
Placing yourself in another's frame of reference	0	0	0	0
Total Skills per Product Focus	25	6	8	1

TABLE 10

Relation of Sensitivities to Product Categories

Sensitivities	Product Focus			
	Research	Development	Diffusion	Evaluation
Values of self and others	3	0	0	0
Capabilities and limitations/ constraints, problems	8	1	0	0
Needs of self and others	1	1	0	0
Interactions of self and others	1	0	1	0
Context of subject matter	0	0	0	0
Values of subject matter	0	0	0	0
Context of objectives	1	0	0	0
Values of objectives	0	0	0	0
Awareness of alternatives	3	0	0	1
Awareness of structure	6	0	0	0
Awareness of method	1	0	0	0
As a catalyst/synthesizer	0	0	0	0
Language barriers (jargon, etc.)	0	1	1	0
Sense of reality in setting long range goals	2	0	0	0
Degrees of freedom to deviate from time lines, objectives, formats	2	0	0	0
Existing value systems which interact (political, religious, profit, etc.)	2	2	0	0
Personality characteristics of others	1	0	0	0
Potential conflicts of interest	1	0	2	0
Supportiveness required	0	0	0	0
Unstated obligations	0	0	1	0
Limitations of analyses of data	1	0	0	0
Target responses	2	0	0	0
Cost factors	0	0	0	0
Sources of error	0	0	0	0
Individual differences	0	0	0	0
Recognition of data needed	0	0	0	0
Acceptability of product appearance, tone, affect	0	0	0	0
Admitting mistakes, adapting to shortcomings	0	0	0	0
Willingness to experiment and hypothesize	0	0	0	0
Total Sensitivities per Product Focus	35	5	5	1

Chapter IV: Details on Each Management Responsibility

This project involves only two professional personnel who distribute the work load between them as it arises. Because of this the distinction between management and production is not sharply drawn. Of the two categories of management distinguished on larger projects (product management and environmental management) little distinction appears here, beyond the general observation that environmental management is provided by the agency, rather than by the project.

Standards, tasks, and enablers are listed for each outcome of production management identified, as they were for product items in Chapter III. Also as in Chapter III, the level (focal, component, facilitating) and current status (completed, currently in progress, not yet started, ongoing) of each product is indicated.

Production Management Responsibilities

Lisiting of standards, tasks, and enablers.

PM-10: Management of Money Resources
Level: Facilitating
Status: Ongoing

Product Standards:

1. Spending does not exceed budget.
2. No deficiencies are felt as a result of efforts to manage money.

Production Management Tasks:

1. Complete blank forms to notify budgeting department of expenditures made.
2. Approve (by signature) all expenditures to authorize project reimbursement.
3. Record all expenditures made under budget categories.
4. Frequently total expenditures under budget categories to insure that categories are not overspent.
5. Plan and prorate spending within categories.
6. Shift money resources from one category to another as required, but within guidelines from funding source.

Enablers of Production Management:

1. Knowledge of various accounting procedures.
2. Skill in estimating project costs in each budget category.

PM-11: Adequate Staff
Level: Facilitating
Status: Ongoing

Perhaps the responses obtained relative to this management outcome are a little artificial. In actuality, the professional personnel were hired prior to the termination of Phase I, and their names are listed in the terminal report for that phase as already being secured for their respective positions. However, the substantive statements under this heading are correct.

Product Standards:

1. Applicant accepts job.
2. Subjective judgment of employee's work.
3. Subjective judgment of employee's compatibility with entire staff.

Production Management Tasks:

1. Review project requirements to determine needed skills.
2. Contact known qualified person to advise him of vacancy.
3. Convince selected person to accept job and move to required location.

Enablers of Production Management:

1. Knowledge of qualified people on other projects and generally in the field of work.
2. Sensitivity to applicant's personality in light of the project and environment.

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PM-12: Microform Hardware Acquisition
Level: Facilitating
Status: Currently in progress

Product Standards:

1. Manufacturer's enthusiasm for the project is apparent.
2. Agreement to cooperate is stated by the manufacturer.
3. Equipment is received as agreed upon.

Production Management Tasks:

1. Identify kinds of equipment required by project.
2. Determine quantity of equipment required by project.
3. Identify manufacturers of type of equipment required.
4. Write letters to manufacturers to solicit loan of equipment.
5. Visit manufacturers, as follow-up to letter contact, to negotiate loan of equipment.

Enablers of Production Managment:

. Skill in concisely communicating intent by letter.
2. Skill in orally persuading manufacturers to cooperate by loaning equipment to the project.
3. Sensitivity to the need for making statements in positive fashion when communicating with manufacturers.
4. Sensitivity to the profit motivation of manufacturers and the relation of the project's requests to that motivation.

PM-13: Work Assignments
Level: Facilitating
Status: Completed

Within this project, "work sharing" would better describe what happens than "work assignment." However, much of the work involved in conducting pilot studies will be performed, without pay, by teachers or librarians at the pilot locations in addition to the normal duties for which they are paid. In this context "work assignment" assumes a somewhat different connotation from that usually envisaged.

Product Standards:

1. Completion of work on time.
2. Quantity of person's output is reasonable.
3. Agreement to cooperate is achieved throughout entire effort.

Production Management Tasks:

1. Use proposal as a check list to insure that all work to be done is specified.
2. Determine elements of work to be done by nonpaid staff in field setting.
3. Contact nonpaid staff's supervisors to obtain necessary approval for further contact.
4. Explain work required by nonpaid staff in field setting.
5. Assign work to be done by nonpaid staff in field setting.
6. Assign work to be done on the basis of staff interest and ability.

Enablers of Production Management:

1. Knowledge of project objectives and scope.
2. Knowledge of work required to meet objectives.
3. Knowledge of project organizational structure.
4. Knowledge of potential nonpaid staff's normal workload.
5. Skill in organizing efforts toward goal achievement.
6. Skill in orally communicating to establish interagency relations.
7. Skill in persuading potential nonpaid staff to contribute time and effort.
8. Sensitivity to other people's capabilities.
9. Sensitivity to desirability of staff interactions with field setting.
10. Sensitivity to other people's willingness to accept additional work.
11. Sensitivity to other people's obligations.

PM-14: Project Time Lines
Level: Facilitating
Status: Completed

Product Standards:

1. Work elements are completed within established time lines and/or within deadline tolerances.

Production Management Tasks:

1. Study proposal to identify objectives, scope, and general parameters of effort.
2. Identify work elements that must be accomplished to achieve objectives.
3. Identify external interrelationships that are essential to achieve objectives.
4. Identify reports to be prepared at specified times to establish time checkpoints.
5. Estimate time required for each work element.
6. Establish deadlines for completion of each work element.

Enablers of Production Management:

1. Knowledge of project objectives, specifications, and scope.
2. Knowledge of time involved in work elements (e.g., obtaining copyright releases).
3. Skill in graphically portraying time lines.
4. Skill in visualizing a series of events that cover a one-year time span.
5. Sensitivity to the desires of all parties involved in project, including funding agency and project staff.
6. Sensitivity to administrative protocol.
7. Sensitivity to what work is possible in a given length of time.
8. Sensitivity to the possible amount of time that can be consumed in negotiation and explanation.
9. Sensitivity to what time slippage or tolerance is allowable or acceptable.

PM-15: Information Dissemination
Level: Facilitating
Status: Ongoing

This product is envisaged, for the purposes of delineation, as the achieving of flow within the project. However, as publicity beyond the project is essential, there is inevitably some commonality between material under this heading with that under P-03.

Under product standards, as well as under both product standards and enablers of production management for the next product, appear the words "no information collected under this heading." Some work is so familiar to a worker that to ask him what enables him to do it poses a problem for him to answer. Because of this difficulty, there is a gap in the data obtainable by the methodology used to seek it at this time. Later case profiles may fill in these gaps.

Product Standards:

No information collected under this heading.

Production Management Tasks:

1. Conduct informal daily meetings with staff to identify problems and determine progress.
2. Report to monthly staff meetings, called by agency, to inform on project progress.
3. Write and receive interoffice memorandums (agency/project) to maintain liaison between staff meetings.
4. Write professional papers to document project findings.
5. Prepare public relations material for dissemination externally by agency's PR office.

Enablers of Production Management:

1. Knowledge in writing professional papers documenting project findings.
2. Knowledge in understanding others' views.
3. Knowledge in orally presenting reports of progress.
4. Knowledge in writing public relations material.

PM-16: Management Decisions
Level: Facilitating
Status: Ongoing

Product Standards:

No information collected under this heading.

Production Management Tasks:

1. Indicates (by signature) approval for disbursement of funds.
2. Exercises responsibility for making all final approvals.
3. Contributes to informal discussion to arrive at decisions by achieving consensus.

Enablers of Production Management:

No information collected under this heading.

PM-17: Advisory Committee
Level: Facilitating
Status: Completed

In a sense, the Advisory Committee is a resource--a people resource, but it is one in which the members of the committee serve voluntarily, rather than being paid by the project (except for their expenses).

Product Standards:

1. All anticipated problem areas are represented by expertise.
2. Conferees contribute appropriately.
3. Advice of conferees proves to be practical.
4. All conferees remain for entire meeting.

Production Management Tasks:

1. Confer with Phase I Director to gain insight into qualifications of Phase I committee members.
2. Select from Phase I committee those members to be asked to serve on Advisory Committee for Phase II.
3. Study proposal and research design to determine skills needed on Phase II committee.
4. Write letters to qualified people asking that they serve on committee.
5. Explain duties to committee members.

Enablers of Production Management:

1. Knowledge of past performance of committee members serving in previous project phase.
2. Knowledge of people who are prominent in various areas of work related to research design.
3. Skill in persuading people to serve on Advisory Committee.
4. Skill in making travel arrangements and accomplishing housekeeping details for committee meeting.
5. Sensitivity to committee member's normal workloads.
6. Sensitivity to committee member's professional vs. commercial interests.
7. Sensitivity to individual capabilities in exercising control of other's efforts.

Summaries of Production Management Data

Listed by categories in Tables 11 and 12 are summaries of production management tasks and standards of adequacy. The knowledges, skills, and sensitivities involved are included in the listing of those categories as cited in Chapter III, Tables 3, 4, and 5.

The zero frequencies in the task list occur because these are classes of tasks in the management group that have been found on other project locations, but not here. It will be noted that the items so designated relate principally to environmental management, which was not interrogated around for this project. That order of management was provided by the agency, rather than the project, releasing project staff to deal only with production management and production tasks.

The same comment is true relative to the listing of categories of standards for management outcomes.

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TABLE 11

Frequency of Citation of Production Management Standards in each Production Management Standards Category

Categories of Production Management Standards	Frequency of Citation
Personnel cooperation	3
Personnel satisfaction	0
Minimum redoing required	0
Meeting of deadlines	3
Personnel output rate/quantity in line	3
Work structure efficiency (minimum "extra" help required)	0
Occurrence of an activity (e.g., products are revised)	0
Personnel indicate feelings of consistent support	0
Participant contributions are considered/utilized	2
Maximum possible participation in meetings, groups	1
Operational demands equate with estimates/projections	0
No gaps appear in representation of groups/skills	1
Adequate operations conducted within budget	2
Personal feeling that no deficiencies exist	1
Personnel perceive problems and individuals task appropriate action	0
Outside organizations/people are cooperative	2
Outside organizations/people reflect enthusiasm/ interest in project	6
Desired personnel obtained	1
Adequate reputation with sponsor	0
Manner of personnel performance fosters respect	0
Feedback occurs	0
Acceptance by user/sponsor of project point of view	0
Cost-benefit relationships are acceptable	0
Total Number of Standards of Production Management Outcomes Cited	25

TABLE 12

Frequencies of Citation of Production Management Tasks in each Production Management Tasks Category

Categories of Production Management Tasks	Frequency of Citation
Tasks that relate to Procurement of Professional Staff	13
Tasks that relate to Operationalizing Accountability Structure	16
Tasks that relate to Procuring Field Setting/Advisory/Services/Commercial Material	18
Tasks that relate to Establishing and Implementing Quality Control Mechanism	1
Tasks that relate to Maintaining Job Satisfaction	0
Tasks that relate to Facilitating Growth of Staff	0
Tasks that relate to Promoting Facilitating Physical Environment	0
Tasks that relate to Maintaining Equity in Demands on Staff	1
Tasks that relate to Promoting Facilitating Field Setting/Inter-Agency Environment	6
Tasks that relate to Establishing and Maintaining Information Flow Patterns	0
Tasks that relate to Diffusing Information Within Project	3
Tasks that relate to Disseminating Information Beyond Project	10
Tasks that relate to Establishing and Operationalizing Decision-Making Mechanism	2
Total Number of Production Management Tasks Cited	70

Interaction of Production Management Data

Tabulations of management standards and tasks by product focus are found in Tables 13 and 14. The only major emphasis outside the research focus of the project is that of information on dissemination.

TABLE 13

Relation of Production Management Standards to Product Categories

Categories of Production Management Standards	Product Focus			
	Research	Development	Diffusion	Evaluation
Personnel cooperation	3	0	0	0
Personnel satisfaction	0	0	0	0
Minimum redoing required	0	0	0	0
Meeting of deadlines	2	1	0	0
Personnel output rate/quantity in line	3	0	0	0
Work Structure efficiency (minimum "extra" help required)	0	0	0	0
Occurrence of an activity (e.g., products are revised)	0	0	0	0
Personnel indicate feelings of consistent support	0	0	0	0
Participant contributions are considered/utilized	2	0	0	0
Maximum possible participation in meetings, groups	1	0	0	0
Operational demands equate with estimates/projections	0	0	0	0
No gaps appear in representation of groups/skills	1	0	0	0
Adequate operations conducted within budget	1	1	0	0
Personal feeling that no deficiencies exist	1	0	0	0
Personnel perceive problems and individuals take appropriate action	0	0	0	0
Outside organizations/people are cooperative	2	0	0	0
Outside organizations/people reflect enthusiasm/interest in project	2	0	4	0
Desired personnel obtained	1	0	0	0
Adequate reputation w/sponsor	0	0	0	0
Manner of personnel performance fosters respect	0	0	0	0
Follow-on proposals are funded	0	0	0	0
Feedback occurs	0	0	0	0
Acceptance by user/sponsor of project point of view	0	0	0	0
Cost-benefit relationships are acceptable	0	0	0	0
Total Number of Standards for Production Management Outcomes Cited	19	2	4	0

TABLE 14

Relation of Production Management
Tasks to Product Categories

Categories of Production Management Tasks	Product Focus			
	Research	Development	Diffusion	Evaluation
Tasks that relate to procurement of Professional Staff	13	0	0	0
Tasks that relate to Operationalizing Accountability Structure	13	3	0	0
Tasks that relate to Procuring Field Setting/Advisory/Services/Commercial Material	14	4	0	0
Tasks that relate to Establishing and Implementing Quality Control Mechanisms	1	0	0	0
Tasks that relate to Maintaining Job Satisfaction	0	0	0	0
Tasks that relate to Facilitating Growth of Staff	0	0	0	0
Tasks that relate to Promoting Facilitating Physical Environment	0	0	0	0
Tasks that relate to Maintaining Equity in Demands on Staff	1	0	0	0
Tasks that relate to Promoting Facilitating Field Setting/Inter-Agency Environment	6	0	0	0
Tasks that relate to Establishing and Maintaining Information Flow Patterns	0	0	0	0
Tasks that relate to Diffusion Information Within Project	0	0	3	0
Tasks that relate to Disseminating Information Beyond Project	0	0	10	0
Tasks that relate to Establishing and Operationalizing Decision-Making Mechanism	2	0	0	0
Total Tasks per Product	50	7	13	0

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Chapter V: Supplementary Data

Summary of Staff Background

Both of the professional personnel on this project have a doctorate degree and 100% time allocation to this project. Their specializations include educational administration, educational research and technology, and music. One of them had some, but less than five years' research, development, diffusion, and evaluation experience. The other had over five years' experience in these areas. Both of them had some but less than five years' administrative experience. They had between them six years' experience in teaching and conducting research in college or university context, seven years' working in public schools, two years' working for state or national educational agencies.

Summary of Interviewee Responses

Present position requirements. The two professional personnel on this project collectively saw the present project as requiring the following:

Knowledge of microform technology.
Cataloguing and indexing.
Educational administration.
Research methodology.
Statistical analysis procedures.
Ability to write clearly.
Ability to solve unforeseen problems.

Support resources. The support services used by the personnel on this project were:

Typewriter.
Calculator.
Key-punch machine.
Data-card sorter.
Remote computer terminal.
Onsite computer.
Duplication equipment.
Typing pool.
File clerk.
Stenographer.
Computer programmer.
Data processing clerk.
Library research specialist.
Audio-visual specialist.
Printer.

Classifications of Output Characteristics

As the Oregon Studies evolved it became evident that outputs could be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, production), (c) Level (focal, component, facilitating), (d) Character (knowledge, technology, implementation, or information), and (e) Stage of completion. These five schema are represented in Table 15 for each project output identified, with frequencies summarized for each category. Table 15 has been added to this profile subsequent to the profile's original writing.

TABLE 15

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Research Design for Pilot Studies	x				x				x		x					x			
P-02	Microformed Bibliographies	x					x			x		x						x		
P-03	Publicity for Project			x		x				x										x
P-04	Adequate Field Setting			x		x				x								x		
P-05	Terminal Report	x					x	x			x								x	
P-06	Phase III Proposal	x				x		x				x							x	
P-07	Revised Research Design	x					x	x				x							x	
P-08	Evaluation of Hardware		x			x				x										x
P-09	Summation of Results of Pilot Studies	x					x		x					x					x	
PM-10	Management of Money Resources			x		x				x										x
PM-11	Adequate Staff			x		x				x										x
PM-12	Microform Hardware Acquisition		x			x				x								x		
PM-13	Work Assignments		x			x				x						x				
PM-14	Project Time Lines	x				x				x		x				x				
PM-15	Information Dissemination		x			x				x										x
PM-16	Management Decisions		x			x				x										x
PM-17	Advisory Committee	x				x				x		x				x				
Classification Frequencies[b]		8	5	4	0	13	4	3	1	13	1	6	0	1	0	3	1	3	4	6

[a] The specific output characteristics are identified as follows:

Structure	Function	Level	Character	Completion Stage
p - product	ps - policy setting	f_1 - focal	k - knowledge	1 - completed over one year ago
e - event	m - management	c - component	t - technology	2 - completed 3 to 12 months ago
c - condition	p - production	f_2 - facilitating	i_1 - implementation	3 - completed within last 3 mos.
			i_2 - information	4 - currently in progress
				5 - not yet underway
				6 - on going (continuous)

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

Chapter VI: Project Dynamics

On Primary Focus

Most who read the title of the project, ". . .to Determine the Acceptability. . .of Microform Collections. . .", assume from that wording that the project constitutes evaluation: to see how well students accept and how well they learn using microform as media for various purposes.

The title distinctly says "A Research Project. . .," but we know that different people have different definitions of research, development, etc., and our purpose is to categorize according to a consistent set of definitions. So if we see it as evaluation, we should describe it that way.

Evaluation, however, would carry the connotation of determining either "if" microforms are acceptable and help learning, or "to what degree" they are acceptable and help learning. This is not the orientation one finds in this project. As this profile points out, the economic advantages of microform are quite definite. They are less expensive, more compact (space-saving), and can save in many areas of library costs by making it possible for each student to have his own low-cost copies of everything he needs.

The major questions seen by this project as remaining unresolved are whether people will use microform media and whether they will learn as well from them as they do from books and other standard publications. But asking those questions may be like asking whether air travel will supersede boat and rail: not entirely, perhaps, but certainly the airlines have a large portion of the passenger complement.

Essentially, the project personnel see microform as media of the future, so the question reorients itself to one of learning how best to utilize these new media, particularly in diverse junior college settings. In this sense, the project is dealing with a research problem.

On Change of Direction

Whether this is precisely how the project personnel of the precedingly funded "phase" saw the intent of this program is not certain. The present project staff spent considerable time at the beginning of their work reviewing research that parallels in any respect the intent of this project, and endeavoring to interpret the intent shown in the reporting of the previously funded phase.

The Phase I (as the previous project was subtitled, with the main title identical with that of the present project) final report, as well as the Phase II (present project) proposal contained the following list of activities (rather than a specific time line) for the present project:

1. Assist with development of research design for Phase III.
2. Select junior colleges.
3. Determine courses to be developed at each college.
4. Select media that will be used at each college.
5. Determine the mixture of microform and publications.
6. Obtain permission to film publications.
7. Evaluate and select hardware.
8. Requisition, order, and receive hardware and software.
9. Develop data collection forms and procedures.
10. Designate the location of software and hardware at each college.
11. Select and train personnel at each college.
12. Conduct trial runs.
13. Evaluate trial runs.
14. Revise research design.
15. Prepare progress reports (to funding sponsor, Advisory Committee, colleges, and public).
16. Prepare budget for Phase III.
17. Prepare agenda for Advisory Committee meetings.
18. Maintain liaison with funding agency.
19. AAJC staff activities.

A bibliography of more than 4,000 items in 10 subject areas was included in the Phase I report. Phase II appeared committed to make selections from this list for use at selected colleges (items 2, 3) and to select hardware and software for a series of trial runs (items 4 through 12) which would include the need for making the software (item 6) available according to the research design formulated.

Detailed study of the content, contacting of appropriate colleges for intended trial runs (or information obtained from those contacts), and a first look at available hardware implied that the conceptualization that initiated Phase I had understandably oversimplified the overall task. There were many more variables found than any cursory reference to microform as media could convey.

By September 1970, the present project personnel had produced a revised set of tasks, as presented in the time line included in Chapter I as Figure 2.

Nature of the Questions Addressed

Previous studies in this subject, as well as most of the Advisory Committee members, view microform use as an interface between hardware and software, but they view this use with the related questions: the mechanics of inserting the software, the reduction and magnification involved, the mechanical configuration of successive images (pages) on the software medium, whether reel, microcard, microfiche, or ultramicrofiche.

While these are design problems that confront microform design engineers, the questions of concern to this project differ somewhat.

The student is not likely to worry about such details, so long as he knows how to find the reference he wants to study and can refer from one to another with minimum effort.

Related to the microform media, these student-centered questions connect with what this project has termed the "mode" aspects of the microform media that determine its content and accessibility from the student viewpoint. These in turn are related to quantity and arrangement of the information.

For example, microform on reel contains the images in sequence. A 300-page book has its 300 pages on successive frames of film that looks like a movie film; to look at page 274, the student must move the frames through the viewer, from 1 to 274, in sequence.

Microcard and microfiche arrange the frames in a matrix, so that only two short movements (vertical and horizontal) are necessary to locate any particular frame the student wants to study.

Internal View of Project

The observation reported in this profile is committed to a definition of "project" that is linked with specific funding and duration. In the original proposal of the project it set forth tentatively three phases, which were to be funded separately and thus qualify within the definition as three projects.

In that original proposal these "phases" were seen as: (a) developing the bibliographies over a representative group of subjects, (b) designing and pilot testing the research method, and (c) conducting the research.

After the second phase, or project, was funded, the new personnel found a new time line more realistic to the original intent. They now see the present project, called "Phase II," as a pilot for wide-scale research in a further project, "Phase III," which will be reported fully in yet another, "Phase IV."

Essential to an understanding of the internal view of the project is the way the personnel look forward to the end results to be learned, rather than merely to the results for which funding already exists. Their view might be paraphrased this way: microform is coming, as sure as progress; the need in education is to gain knowledge needed to optimize its use. This project is charged with obtaining that knowledge.

It may be that funding for the next step will not follow the present one contiguously in time, but it will follow, because it is necessary. Therefore, the commitment is toward Phase III and Phase IV as an end objective. The pilots are just steps toward them, as are plans for these next "projects," including the selection of colleges to be used.

Bearing this in mind helps understand an ambiguity which tends to creep into discussions of this project: "which are we talking about, the pilot studies, or the long-range plans?"

One example of this relates to the products listed in Chapter III as numbered P-01 and P-07 respectively. P-01 is a research design for the pilot studies, but it is also the starting point for P-07. As the present project progresses, various kinds of improvements in research design are made But in what respect is the design changed; for the pilot studies, for the long-range study plans, or for both?

Because of the smallness of the present project, this is easy to control. A decision in answer to that question can easily be made every time a change is contemplated. In a sense, both products, the design for the pilot studies and the revised design for the future project, are complete at any one time, at least in the Research Director's head! But because each is continually, and to a different extent, being updated, neither is truly complete until close to the termination of the project.

This freedom to grow as the project advances provides a flexibility from which the ultimate future project will benefit in two ways: (a) because it has been continually in mind throughout the present project, and thus is the number one focus for improvement; and (b) because it is believed the pilot studies have enabled more progress to be made toward a perfected study design than would be possible had these designs been completely "frozen" at the outset.

Cooperation Within the Project

A strong feature exuding from this project is the cooperation it has received on all sides. This includes the manufacturers of hardware, the publishers of materials for which the project will produce microform copies, and the personnel, teachers, and librarians at the junior colleges used for the pilot studies.

Manufacturers of hardware have been pleased to loan hardware for the experiments, because they see potential new markets for their products. As this project aims at determining how microform can best be used, the evaluation of hardware in this context will enable them to improve their designs with this particular objective in mind.

At this stage, microform is also a brand new medium for the text that will be reproduced in it. The main problem in securing permission to reproduce from the copyright owners was that of locating them. In some instances a letter to the publishers secured total copyright permission for that item. In others, the publishers of the immediate text to be reproduced had themselves obtained permission from prior owners of copyright for parts of the text reproduced from earlier sources. This permission does not automatically extend to any other persons these publishers may choose.

Because the publisher of a history text, for example, has obtained permission to reproduce excerpts from earlier publications, he is only granted that permission to reproduce to that specific text and mode of publication. It cannot be reproduced in microfrom without once again securing permission from the prior copyright owners.

This was, in some instances, a little difficult to trace down. But publishers and others proved very helpful in the process, and practically all permission had been secured at the time of observation.

Teachers and librarians at the junior colleges used for the pilot studies were only too pleased to cooperate, with the thought of "being in on the ground floor" of innovation that promises to make their lives easier in the future. Of course, this reflects on the "selling" job that the project personnel had done with the new media, and on the extent to which the experiments were planned to involve as little as possible extra work for these school personnel.

Considerations in the Use of Hardware and Software

Hardware (equipment for viewing) and software (information contained on a microform medium) must go together. Each must suit the other. At the time of observation, a particular deficiency was noted. A certain range-of-reduction ratio, which in theory promised considerable utility for certain applications (modes), lacked availability of suitable hardware. Because of the almost complete nonavailability of this range, this form or mode was being bypassed for the time being.

However, in the hardware that is available, there are note-worthy differences that affect the user: particularly the ease with which he can obtain a sharp image and with which he can locate the frames in which he is interested.

Because of the rapid growth in number and size of community colleges throughout the country, hardware manufacturers see this market as potentially lucrative, and thus they are concerned to develop products that will serve that market. Conceptually, any kind of hardware that enables retrieval of information stored on the appropriate software would serve the purpose, provided adequate quality of image is presented. In practice, however, nuances in use almost inevitably effect the factors to which this project addresses itself: particularly the acceptability of the media and the readiness with which students will use it. Thus, while the primary consideration related to the media chosen will be the various modes effecting the content and usage related to course presentation, at the same time the ease or difficulty of the operation involved will effect students' readiness to use it in different contexts.

If microform is the only available form in which a required text is provided, obviously the student will use it or quit, although without quitting, his learning may suffer if the hardware imposes undue difficulty in reading his assignment. On the other hand, if microform is used for optional reading material or other optional matter, the situation changes. It may shift the students' emphasis on the activities involved in learning.

With these factors in mind, evaluation of hardware, specifically for the uses to which it will be put, is important for future selection and development: selection of appropriate hardware for a given purpose, from the currently available hardware at any given time; and for development of hardware that will better meet the needs of these uses in the future. This aspect of hardware evaluation is of utility to the hardware manufacturers and it is for this reason, partly at least, that these manufacturers have shown enthusiasm in cooperating with this project.

Chapter VII: Implications for Training

Responding to questionnaire items inquiring about preservice training, the project personnel see the following training areas as necessary for the kind of activity required in this project:

Research methods.
Statistical analysis.
Audio-visual education.
Teaching methods.
Educational administration.

In interviews during the observation and discussion of activities, a comment was made that specific training to the subject matter of the research, in this instance the utilization of microform as media, cannot be expected as a training requisite, because research into use of this group of media is apparently new with this project.

Accordingly, a suggestion made was that a general type background should be provided in such a subject as "Foundations of Information Science" in which emphasis is placed upon application or extension into areas for which specific preparation has not been made.

One staff member's first major was in music, and when asked what in his background was least essential to him as preparation for this project he indicated his study of music. However, his interest in research sprang out of his pursuit of music, and eventually research became his vocation. Maybe the discipline whereby the excellence of musical performances progresses through successive changes in orchestration, if not essential to research, is not altogether lost?

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CASE PROFILE NO. 6

Written by
Clark A. Smith

PROJECT TITLE: A RESEARCH AND EVALUATION UNIT IN A PUBLIC SCHOOL SYSTEM: The Office of Research and Evaluation of the School District of Philadelphia.

(ORE Project)

AN EDUCATIONAL EVALUATION PROJECT CONCERNED WITH: Producing useful, current, and new information for decision makers in the school system from the classroom teacher to the superintendent, and making available to the community-at-large information which permits community action to be based on accurant and correctly interpreted data regarding the operations of the system.

A PROJECT OF:

The School District of Philadelphia
School Administration Building
21st Street South of the Parkway
Philadelphia, Pennsylvania 19103

This profile has been prepared according to

PROFILE FORMAT No. 3

Three profile formats are represented in this volume.
The reader should refer to this number when making
use of the reader's GUIDE to the profiles.

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Chapter I: Overview

The overview presents a brief synopsis of the Office of Research and Evaluation (ORE) Project. This is elaborated by a discussion of the objectives, rationale, and significance of the project and the context in which it operates.

Synopsis of the Project

Title: The Office of Research and Evaluation.

Responsible Institution: The School District of Philadelphia.

Primary Funding Source: 1. The School District of Philadelphia.
2. U.S. Office of Education.

Funding Duration: Annual FY Budgeting (ongoing).

Observation Date: May 1971.

Present Stage of Operation: Initiating analyses of data and summarizing activities preparatory to entering final (annual) reporting procedures stage.

RDD&E Focus of Project: Educational evaluation, with secondary emphasis on research.

Expected Outcome: Reliable information for decision makers (regarding school district operations), and for an informed public.

Level of Funding and Duration: High. (level 7 of 7 levels)

Agency Setting: Public schools.

Staff Summary (current):	Professional	Support
Total Full Time Equivalency	45	43
Number of Personnel Assigned	45	43

Professional Specialities of Staff: educational administration/research/teaching/psychology, experimental psychology, psychology, mathematics/statistics/measurement, curriculum and instruction, public affairs/government, and guidance/counseling.

Objectives, Rationale, and Significance of the Project

While not a project in the usually defined sense, the primary objective of the Office of Research and Evaluation (ORE) is to produce information for decision makers in the school system, whether they be teachers, administrators, or Board members. In producing this information, the concern is for the collection of relevant and comprehensive data, the analysis and organization of it in comprehensible form, and the highlighting of insights or implications inherent in the data. Additionally, the ORE works to establish and maintain an accurately and responsibly informed public, in keeping with policies of the system regarding public access to information. Some by-products of achieving these objectives include those of a research nature in which new relationships are identified and generalized successfully to a broader audience through the process of informed decision making.

The need for a centralized rendering of such information-generating services becomes apparent in the face of the broad range of projects and activities being conducted within this size public educational system. An added complication results from the fact that these efforts draw upon a variety of funding sources. The breadth and diversity of the activities of the system require various levels of observation, i.e., individual as well as collective project effects, in order to identify and produce information regarding various phenomena as they occur. Additionally, a centralized service reduces unnecessary redundancies in observation and maximizes the utility of measures taken and of instruments constructed.

Of particular significance within the efforts of the ORE is the emphasis on the collection, analysis, and interpretation of data in light of the broadly ranging variables undergoing investigation. Moreover, attention is given to developing and testing alternative explanations for particular data configurations toward the end that new or "key" variables are derived, identified, quantified, and added to increasingly sensitive sets of information. As a final step in producing useful information, the ORE makes explicit that the user of such information must interpret the data in relation to available data about other relevant variables which may be known only to him.

In brief, the efforts of the ORE consist of refining and improving data collection, analysis, and interpretation activities and providing such explanations of the limitations of the data as to enhance the probability of its use in a constructive manner in keeping with objectives of the educational system. Thus, a profile of an organizational unit, as opposed to a project, within a large educational setting is justified. Subsequent sections, then, will consider the educational research and evaluation operations of an organizational structure within a complex system having administrative control over its conduct. For purposes of the balance of the text of this profile, the term "project" will generally refer to a specific item of ORE attention and where it refers to the operations of the Office as a whole it will be shown as "Project (ORE)."

Context in Which the Project Operates

The context in which the ORE operates is a public school system composed of eight administrative districts encompassing some 275 separate school units. A representation of the context is given in Figure 1. It is at once apparent that the figure **has** the characteristics of an organizational chart, particularly with respect to the labels given the various contextual units. Extending beyond the contextual map are the usual contexts of School Board and community typical of most school districts. The uniquenesses of these relationships is noted below. The ORE then resides in a structured context that dominates its operations and is designed to serve that context.

Within the contextual map three major offices are shown, two of which are divided into levels. The interrupted diagonal line illustrates direct operational linkages between offices by virtue of functional role positions. Further explanation of these linkages appears in Chapter II with detailed discussion contained in Chapter V.

Relationship to other agencies. The interrelationships which exist within a large school system and between that system and other agencies and institutions are so many and varied that complete discussion is not possible here. However, there are significant examples of classes of relationships that can be described which will permit a fuller understanding of the purposes and work of the ORE as a project. The citation of these examples is organized around four classes of relationships, i.e., (a) a parent agency factor, (b) funding sources, (c) test publishers, and (d) Great City Schools.

A unique parent agency factor within the system being served by the ORE is the relationship of the system of city government. While a Board of Education does function in the usual sense of a school board, provision of funds to cover a majority of the operational budget of the system is the business of City Government. The balance of operational funds are allocated by the State Government.

Funding sources are varied but the primary sources of funding to the ORE are the school district and the U.S. Office of Education (USOE). (See Chapter IV for greater detail.) In the case of school district funds, the relationship of the ORE to the funding source is as indicated in the contextual map. However, in the case of outside funds such as from USOE, the relationships vary. In some instances the ORE holds a direct contractual commitment to the funding agency for performing specific research or evaluation tasks. In other instances, the contractual commitment is directly held by other offices in the district with research and evaluation services being rendered by the ORE.

The production of reliable information for system decision makers requires a broad range of measurement activities to be undertaken by the ORE, including careful and meaningful analyses of the data derived. In terms of the size and scope of the measurement task, contracts for

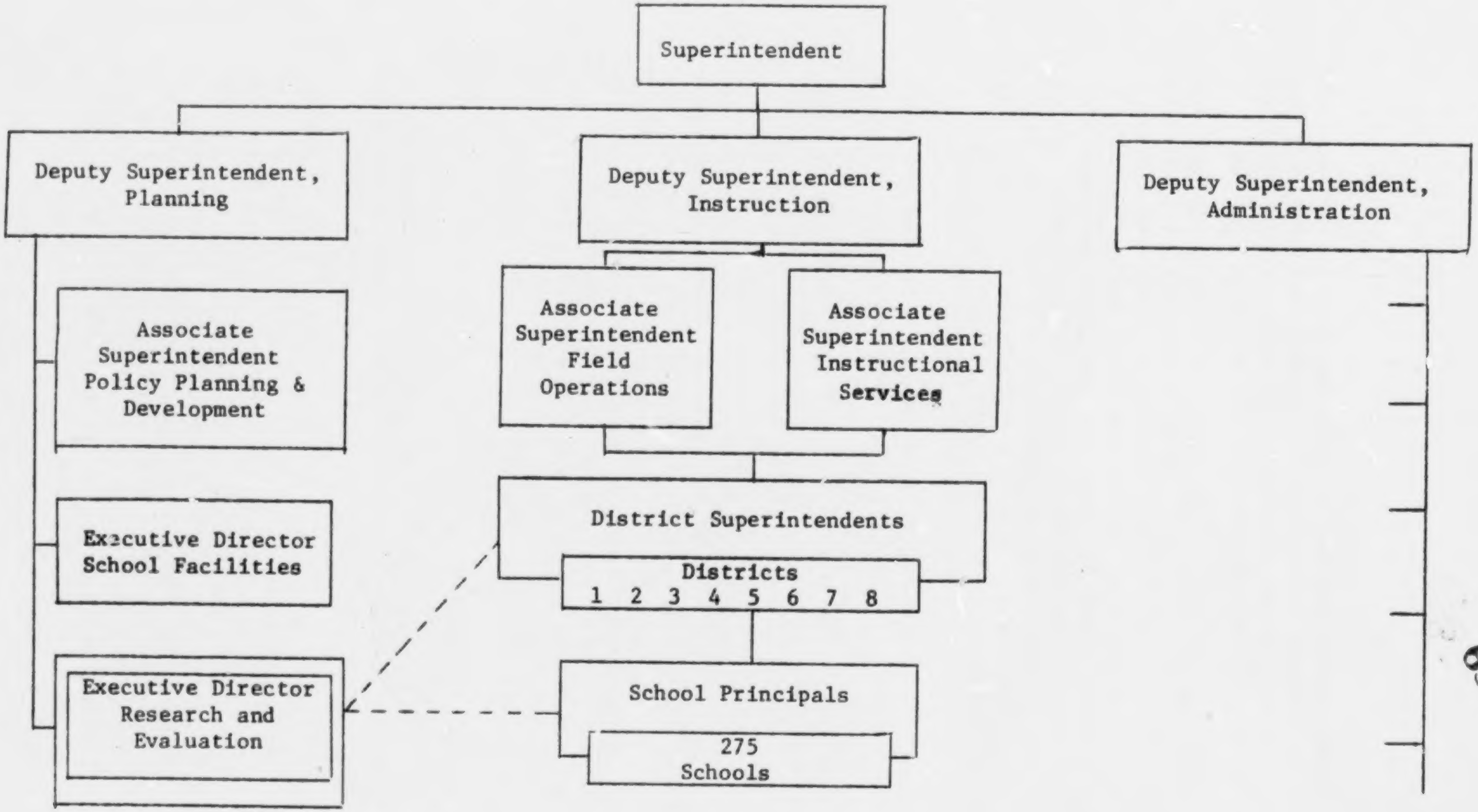

Superintendent
Deputy Superintendent, Planning
Deputy Superintendent, Instruction
Deputy Superintendent, Administration
Associate Superintendent Policy Planning & Development
Executive Director School Facilities
Executive Director Research and Evaluation
Associate Superintendent Field Operations
Associate Superintendent Instructional Services
District Superintendents
Districts
1 2 3 4 5 6 7 8
School Principals
275 Schools

Fig. 1. Contextual map.

tests and test scoring services are particularly attractive to test publishers. For this reason, working relationships exist between ORE personnel and test publishers relative to a variety of needs. These needs include such things as assisting teachers to correctly administer tests and use results, developing means of analyzing out-of-level-testing data for comparability to other data, and other specialized treatment and formatting of test results for specific district purposes.

The school system is a member of the Council of Great City Schools, a consortium of the largest school systems of the nation working on common problems unique to educational efforts in densely populated areas. The Executive Director of the ORE thus has continuing relationships with 21 research directors holding similar responsibilities. Operationally, these relationships permit exchanges of information and the coordination of special investigative efforts for the benefit of all. In addition to the Great Cities affiliation, membership is held in another organization, Directors in Instructional Research, having 50 to 60 member cities and offering additional mutual aid potential. Membership in a special interest group of the American Educational Research Association is also held by various staff members. The Executive Director of the ORE has the position of Program Chairman of that group for the 1971-72 year.

Relationship to other efforts of an overall program. While it has been pointed out that the ORE carries out both contractually related and support related activities, the real meaning of those activities is understood best in relation to the overall program of the school system which is designed to be responsive to the needs of students and adaptive in the structures which control its operations. The ORE relates to these functions in a variety of ways. Individual schools and districts receive assistance in the generation and monitoring of projects from the ORE. This may be in the form of assistance in drafting the proposal, definition of measurements needed, development and coordination of measurements, and analysis and interpretation of the data. Projects generated solely by the ORE usually serve to gather information on the impact of program efforts. An example of this case is the examination of the impact of Title I projects. Relative to accommodating the needs of the administrative structures, the ORE generates and maintains current data across a wide range of demographic, fiscal, and achievement variables. "Key indicators" are sought which may serve as barometers of the "health" of the system, including cost-benefit ratios.

Time lines. The establishment of time lines for ORE operations is an annual effort involving identification of information needs at all levels, the ordering of those needs in terms of priority, and analyzing what is possible in terms of resources. All division and department heads within the ORE participate in this process. In maintaining operations according to that schedule, negotiable and non-negotiable elements are identified and appropriate action implemented as necessary. It is the responsibility of each working level to maintain an awareness of the status of work so that appropriate adjustments may be made prior to arriving at critical due dates.

Physical/environmental setting. The bulk of the ORE staff occupies office spaces on two floors of a large public school administration building which houses all system personnel other than those within the schools and districts. Other ORE staff, consisting of those having only a portion of their time at ORE discretion, are housed in the districts where the majority of their work is conducted. For those ORE staff working in the administration building, space appears adequate and offices are located so as to facilitate communication between those engaged in common efforts. The administration maintains a major professional library available to all staff and the ORE maintains a smaller specialized library in the area of the office of its Executive Director.

Chapter II: Parameters of the Project

Presentation of the parameters of the Project (ORE) is focused on two dimensions: (a) the ORE structure in terms of the staffing pattern employed and the roles and function served, and (b) the outputs generated by the ORE and its personnel. Interpretive discussion, where applicable, is presented in Chapter V.

Project Structure

The structure of the ORE is considered in two dimensions. First is an elaboration of the staff structure of the ORE, and second is a consideration of the staff roster in terms of the various types of work roles represented.

Staff structure. Figure 1, in Chapter I, illustrates the context in which the ORE operations are conducted. The following figure, Figure 2, elaborates the structure of staff under the Executive Director of Research and Evaluation. Two of the four major divisions of staff have been outlined in greater detail in order to bring greater clarity in subsequent sections of this profile to the relationships between the organizational structure and the activities which were the focus of data collection efforts.

In considering Figure 2, each of the four major divisions serve rather discretely defined functions within the ORE. Keeping in mind the role of the ORE, these include information generating functions relating to instructional systems (DIRD), demographic systems (DASR), student achievement and performance factors (DT), and school system performance factors relative to effective utilization of resources (DRM). The discreteness of these information generating functions can be seen primarily in the dimensions of the school system being described. To that extent each division is responsible for the collection of broad classes of different information. Operationally, however, each division must utilize some of the information generated by the others in order to correctly interpret its own. For example, the Division of Instructional Research and Development may well require pupil achievement data from the Division of Testing in order to complete a particular assessment task.

The structures of the DIRD and the DASR are similarly organized by function. In the case of the DIRD, the initial structure accounts for two functions, i.e., instruction and operations. These are followed by an organizational pattern consistent with the various research, development, or evaluation projects in operation in the school system and the various modes of rendering service to the districts. The DASR too is organized along the lines of specific data categories with specialty or control functions subordinate to those.

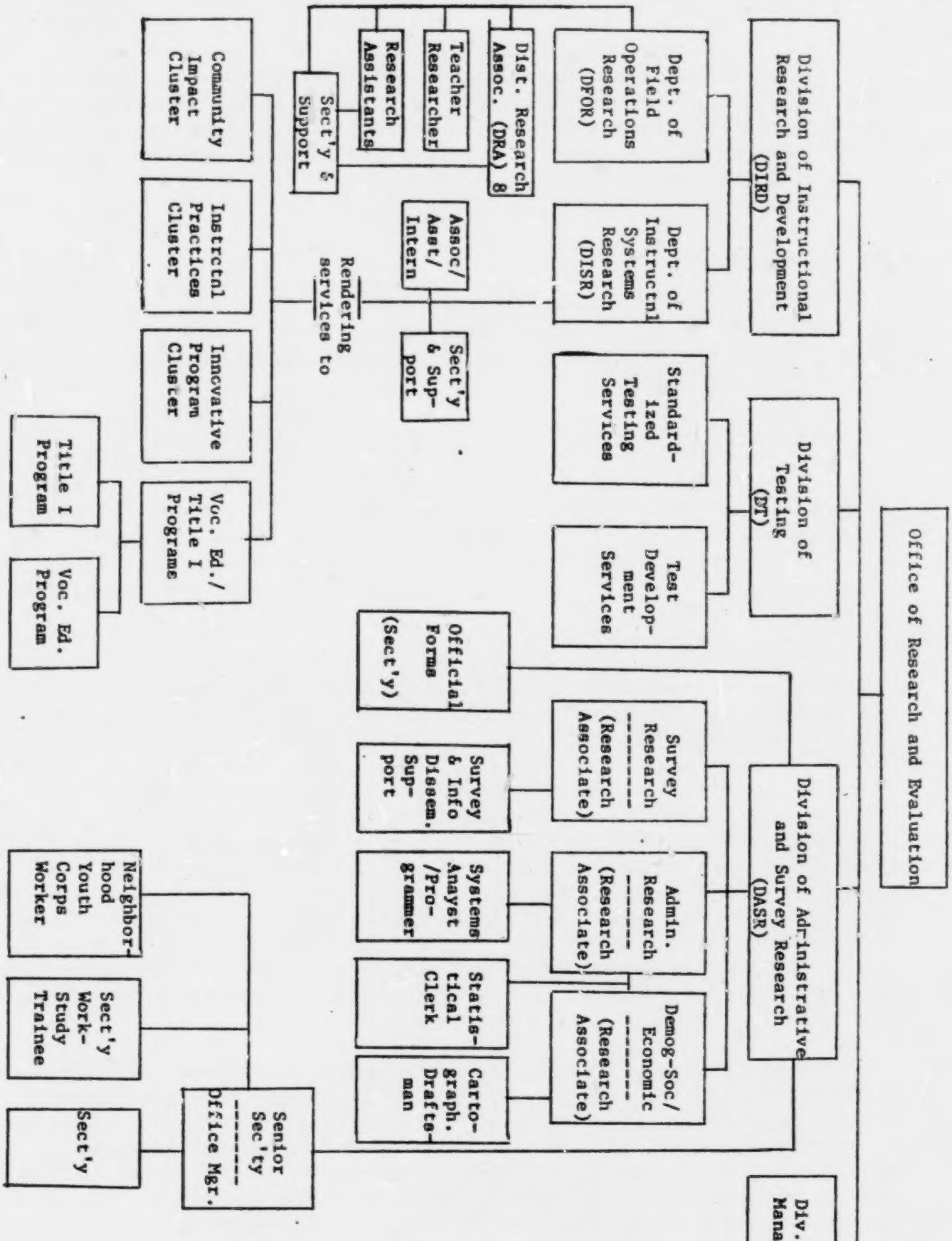

Office of Research and Evaluation
Division of Instructional Research and Development (DIRD)
Division of Testing (DT)
Division of Administrative and Survey Research (DASR)
Div. of Resource Management (PPBS) (DRM)
Dept. of Field Operations Research (DFOR)
Dept. of Instructnl Systems Research (DISR)
Standardized Testing Services
Test Development Services
Survey Research (Research Associate)
Admin. Research (Research Associate)
Demog-Soc/Economic (Research Associate)
Dist. Research Assoc. (DRA) 8
Teacher Researcher
Research Assistants
Sect'y & Support
Assoc/Asst/Intern
Sect'y & Support
Official Forms (Sect'y)
Survey & Info Dissem. Support
Systems Anayst /Programmer
Statistical Clerk
Cartograph. Draftsman
Senior Sec'ty Office Mgr.
Rendering services to
Community Impact Cluster
Instrctnl Practices Cluster
Innovative Program Cluster
Voc. Ed./Title I Programs
Title I Program
Voc. Ed. Program
Neighborhood Youth Corps Worker
Sect'y Work-Study Trainee
Sect'y

FIG. 2. Project organizational structure.

Historically the staffing structure of the ORE has passed through several evolutionary stages in a period of about four years. Each stage represented a structure consistent with the data requirements of the time and with the personnel available for fulfilling those requirements. As new tasks were identified and their logical relationships to existing operations determined, reorganization took place. This resulted in existing units expanding the scope of their responsibilities or in new departments or divisions being established, with corresponding adjustments of responsibility. While there has been some turn-over of personnel within the ORE, the primary management staff has essentially retained its identity and individuals have continued to relate (if at different levels) to areas of interest and expertise.

Project roster. Table 1 contains the ORE staff roster by job title as identified by the interview team. Significant characteristics which relate each job title to the structure shown in Figure 2 are included in the table for each entry.

Outputs Generated

Each of the outputs generated by any collective action of a group of people focusing on a common production effort has been conceptualized as falling into one of three classes: (a) tangible products which exist concretely at points in time; (b) events or processes which facilitate or are requisite to achieving the ORE objectives; and (c) conditions or states of being which contribute to achieving those objectives. In each of these cases the output may also either facilitate, be a component of, or even be the focus of ORE objectives in and of themselves. In addition, each has a functional relationship to the total efforts relative to production, management, or setting of policy, and can be further classified as to character, i.e., knowledge, technology, implementation information. (See glossary in Part 1 of Volume IV for definitions of various descriptors.)

To facilitate presentation of outputs in a manner that communicates their relationships within ORE, two modes are used; (a) outputs listed and described by structure (product, event, or condition) and annotated in accordance with the level, character, and function of their characteristics, and (b) outputs schematically mapped according to their dependencies.

TABLE 1

Project Roster of ORE Staff by Job Title

Executive Director of ORE:	Responsible to the Deputy Superintendent for Planning. Principal decision maker for ORE and coordinates all information generating and disseminating activities, contributing areas of expertise as applicable.

Division of Instructional Research and Development (DIRD)

Div. Director:	Responsible to the Executive Director of ORE. Principal decision maker for DIRD and coordinates all activities of the division and its departments. Exercises quality control mechanisms and nurtures atmosphere for constructive criticism. Establishes/negotiates timelines.
DISR Director: (Asst. Director)	Responsible to the Division Director. Principal decision maker for DISR and coordinates all activities of the department. Maintains detailed work flow mechanisms and participates in production efforts. Establishes/maintains/negotiates timelines.
DFOR Director: (Asst. Director)	Responsible to the Division Director. Principal decision maker for DFOR and coordinates all activities of the department. Assists in interface between ORE or Division activities and operations in the field. Provides guidance to District Research Associates (DRA) and participates in negotiations for services with test publishers.
District Research Associates:	Responsible to assigned District Superintendents for .80 FTE, the Director of the DFOR for .20 FTE. Provides research, development, and/or evaluation services to the districts at the discretion of the superintendents. Facilitates interface between the ORE activities and field operations.
Research Asst.:	Responsible to the Associate or Director to whom assigned. Performs various library and other data collection efforts as assigned. Compiles and prepares data analyses, advises and trains teachers in administration and use of tests.

TABLE 1 (Continued)

Project Roster of ORE Staff by Job Titles

Research Intern:	Responsible to the Assistant, Associate, or Director to whom assigned. Performs many of the same tasks as the assistant while under supervision. Is assigned increasingly complex tasks as competence is demonstrated.
Teacher Researcher:	Responsible to the School Principal in which the teacher works. Is provided with release time to perform individual or building project tasks with the support of personnel from the DFOR. In effect, performs services for the principal and staff of a school similar to that provided districts by the district research associates.
Division of Administrative and Survey Research (DASR)	
Div. Director:	Essentially the same as for DIRD Director. Interacts with other school system program personnel regarding information needs, and supervises development of "key indicators."
Adm. Research: (Res. Assoc.)	Responsible to the Division Director. Principal decision maker for unit and coordinates the ongoing development of the Pupil Data System and the data generated by Official Forms. Provides consultive services to other offices with respect to administrative problems in data management. Conducts special surveys.
Survey Research: (Res. Assoc.)	Responsible to the Division Director: Principal decision maker for unit and coordinates the development of tools and the collection of data relative to special survey tasks.
Demog/Socio/Econ.: (Res. Assoc.)	Responsible to Division Director. Maintains current demographic data and coordinates projection analyses as required.
Systems Analyst:	Responsible to Administrative Research associate and Division Director. Provides the systems and programming services which effect the interface between the storage of data and its retrieval in usable form.

TABLE 1 (Concluded)

Project Roster of ORE Staff by Job Titles

Res. Associate:	Responsible to the Division or Department director to whom assigned. Develops, conducts, and/or supervises various data generating projects or methodologies, including necessary training of personnel. Provides consultive services to various units of the school system as required.

Division of Testing (DT)

Div. Director:	Responsible to the ORE Executive Director. Principal decision maker for the Division and coordinates standardized testing activities and interpretation of its outcomes. Conceptualizes, designs, and/or facilitates teacher training in construction/administration/interpretation of tests. Primary participant in negotiations with test publishers regarding analyses, measurement needs.

Division of Resource Management (DRM)

Div. Director:	Responsible to the ORE Executive Director. Interacts system-wide with various decision makers to establish resource requirements and fiscal information needs. Principally responsible for the refinement and improvement of the PPB System utilized to determine cost-benefit relationships of the various activities of the school system.

Index of outputs. The outputs listed below reflect only such samples of the ORE outputs as were identified as being representative or inclusive of literally thousands that might be identified. The identification number (e.g., P-08) given each output remains constant throughout this profile and corresponds to the output designations used for outputs as they are considered in other chapters. Those including an asterisk are outputs around which data were collected. Summaries of these data may be found in Chapter III and the Appendix.

PRODUCTS:

Focal development products relating to ORE management function:

*P-21.	Pupil Data System. A computerized data file on all pupils in the Philadelphia Public Schools. This file is continually updated and maintains a less-than-.5% error rate.
P-64.	Planning-Programming-Budgeting Manual. A document prepared jointly by the district Budget Division and the Division of Resource Management to be used as a guide to school system administrative staff in developing budget requests for the succeeding school year.

Focal development products relating to ORE production function:

*E-51.	Feedback Systems (for ongoing classroom management). A set of record forms and procedures developed by the Department of Field Operations Research for use in specific skill areas of concern to a teacher and which provides organized performance data to a teacher, with whatever analysis is desired or meaningful (e.g., individual performance, class performance, etc.), within 24 hours of receipt of test records in the department.

Focal diffusion products relating to ORE management function:

P-08.	Paper on Accountability in Education ("Accountability Readings"). A set of papers contributed to and edited by the Executive Director of ORE which presents a brief look at accountability in American education. Three papers include: (a) the issue for school directors and administrators; (b) an informal report on an accountability conference; and (c) an indication of some of the common statements on accountability in the literature and descriptions of various techniques designed to satisfy demands for accountability and improvement in teaching performance.
P-31.	Management Information Center (MIC). A room maintained adjacent to the Superintendent's office. This room is similar to the military "war room" in which the current school system "situation" is displayed.

P-61. PPBS Update (Newsletter). A periodic publication of the Division of Resource Management "to keep school principals and program managers informed on the Planning-Programming-Budgeting System."

Focal evaluation products relating to ORE management function:

P-10. Report of Activities (1968-1969). An end of the year report of the accomplishments of the Office of Research and Evaluation. The report presents technical data obtained through research and evaluation activities conducted during the 1968-69 school year.

P-11. Title I ESEA Annual Report (1968-1969). A five volume report of activities, conducted in the Philadelphia Public Schools, that received their major financial support from the federal government under Title I.

Focal evaluation products relating to ORE production function:

P-15. Organizational Chart for the Philadelphia School District. A wall chart showing the organizational pattern of the administration of the Philadelphia School District. This chart is published monthly by the Office of Research and Evaluation (Division of Administration and Survey Research).

P-16. Survey Reports. Published documents which report the results of surveys conducted within the Philadelphia Public Schools.

P-28. Special Request Reports. Documents that result from any special request as opposed to periodically produced reports. Such requests frequently involve retrieval of data from the Pupil Data Bank. All such requests must be carefully screened to prevent inappropriate use of what might be privileged information.

*P-42. Final Annual Report of Evaluations. A report prepared by the Division of Instructional Research and Development covering the results of the evaluation activities of the division during the school year. The report contains the substances of each of various evaluation clusters and places each set of such data in the context of the system-wide activities being evaluated.

P-68 Achievement Testing Reports. The collective set of achievement testing reports which represents all achievement test data generated and accompanying statements which describe the meaning of that data in relation to system-wide trends in pupil performances. Such trends are noted against baseline data established in the Fall of 1966 and annual Spring measures beginning in 1968.

Component development products relating to ORE management function:

P-30. Historical Pupil Data File. A component of the Pupil Data System which relates to pupils after graduation or movement out of the Philadelphia Public School System.

Component development products relating to ORE production function:

P-17. Technical Documents Backing Up Survey Reports. Documentation filed in the Division of Administrative and Survey Research which supports or confirms the findings reported in Survey Reports.

Component diffusion products relating to ORE management function:

P-33. Management Information Center Displays. Graphic presentations of various factors influencing the current school system situation. Maintaining the currency of the data and the displays of those data is the responsibility of the Office of Research and Evaluation.

Component evaluation products relating to ORE production function:

P-18. Summary of Personnel in the Philadelphia Public Schools. A survey report published annually describing the teaching and administrative staffs in the schools of Philadelphia. It is in brochure form for school system dissemination as well as for the information of interested individuals and community organizations.

P-19. Enrollment of Negro and Spanish-speaking Pupils in the Philadelphia Public Schools. An annual survey report giving status and trends in enrollment of Negro and Spanish-speaking pupils. It is in brochure form for school system dissemination as well as for the information of interested individuals and community organizations.

*P-20. Key Indicators and Definitions. A list of critical factors in judging the "health" of the school system. Data about these indicators serve as primary displays in the Management Information Center.

P-26. Census Tract Tabulation. School/pupil population figures based upon geographical division of Philadelphia into census tracts. This tabulation allows attendance projections to be made on the basis of population statistics.

P-27. Feeder Area Tabulation. School/pupil population statistics shown as a function of dividing the city into areas which provide the pupils for that area. This tabulation provides information germane to facilities planning.

P-29. Long Term Enrollment Projections. Statistical presentations of enrollment projections which are primarily used by the School Board and Superintendent for facilities planning.

*P-39. Final Evaluation Report: School-Community Impact Cluster. The findings from the evaluation of a cluster of five programs or projects. The evaluation of this group of projects allows measurement of the overall impact of school-community activities since this aspect is common to all included projects.

P-58. School Test Performance Profiles by School (ITBS Testing). A series of profiles of data from four annual administrations of the Iowa Test of Basic Skills (year 3 through grade 8) ordered by school and grade level and accompanied by a cover document which describes the procedures to follow in tracing and interpreting the data in relation to national percentile rankings. The profiles permit each school to examine rankings at specific grade levels over a four year period in light of variables known best by individual school personnel. Frequent admonitions regarding other use is included.

P-59. Description of School Summary Reports, (ITBS Testing). A description of summary data collected on the basis of current and preceding years' administration of the Iowa Test of Basic Skills (year 3 through grade 8). The document describes how to read and interpret the data tables, with comparisons being made against local and national norms (by school) across same-grade-successive-years, same-pupils-successive-years, and aggregate-all-grades.

P-60. School Performance Distributions--All Grades Tested. A summary form which outlines for each district the percents of pupils scoring within various percentile ranges, on (a) a national basis, (b) city-wide basis, and (c) a district basis, on the current administration of the Iowa Test of Basic Skills across the applicable grades. Percents of students thus scoring are displayed for the Reading subtest, Total Arithmetic, and a composite of these two with Vocabulary, Total Language, and Total Work-Study subtest scores.

Facilitating development products relating to ORE policy function:

P-04. Proposal for the Implementation of the Department of Field Operations Research. A report prepared by the manager of Field Research Services (a former unit designation) which sets forth a proposed organizational structure for research work and services within the schools of the district. The report describes four dimensions of the program: (a) staff to be provided; (b) direct services to be provided; (c) indirect services to be provided; (d) relationships and responsibilities.

P-45. General Operational Plans and Policies for the Division of Instructional Research and Development. A report prepared by its director which describes the goals, operational rationale and activity function, organizational structure, task assignment schema, and management information system for the division. The report also contains a prospectus for the organization and responsibilities of the two departments within the division, i.e., Instructional Systems and Field Operations.

Facilitating development products relating to ORE management function:

P-01. Job Descriptions. A set of descriptions by job title, e.g., Research Associate, Research Intern, of positions existing within the Office of Research and Evaluation (ORE). The descriptions include an overview statement, "duties," "required knowledges, skills and abilities," and a "minimum acceptable training and experience" statement.

P-07. Operational Guidelines for District Research Associate Program. A document describing the general role and classes of activities for Research Associates assigned to each of the eight districts in the school system. The description further specifies that priorities of activities may be established by each district with the consequence that specific activities of an associate may vary from district to district.

*P-13. Design for Evaluation of the School-Community Impact Cluster. A plan for evaluating a group of projects. These projects all had implications for enhancing school-community relations and mutual involvement.

P-22. Task and Time Allotment for the Administrative and Survey Research Division. A personnel and activity schedule for this division. This schedule indicates all recurring activities and periodic surveys as well as special request efforts.

P-35. Guide for Using Observational Checklist. A set of instructions for employing the observational checklist. The instructions cover how to place marks and how to change marks so that the checklist can be optically scanned. The instructions are not specific to any particular evaluation use of the checklist.

P-36. A Guide for Typewriting Final Reports. A set of instructions to clerical personnel covering such items as accepted spacing, table formats, etc.

P-37. A Guide for Authors of Final Reports. A style manual instructing staff members in the office-approved format for final evaluation reports.

P-40. End of Year Report Procedures. A document specifying 16 tasks to be accomplished by the staff of the Department of Instructional Systems Research beginning with the preparation of the initial rough draft of the final report. The document further specifies those persons or classes of persons responsible for accomplishing each task and the dates for starting and completing each.

P-44. Operating Procedures for Teacher-Researchers. A document prepared by the Department of Field Research which describes (a) the purpose and function of the teacher-researcher; (b) his relationships to the home school; (c) his relationships to the district and the ORE; (d) the parameters for project and priority setting; and (e) opportunities for pursuing individual interests.

P-66. Formats for Performance Data Presentations. A set of specifications prepared by the Division of Testing which are to be displayed relative to given performance questions. The designs of the formats also depend on the nature of data and the audience for which the data are intended in order that such displays are as easily read and understood as is possible.

Facilitating development products relating to ORE production function:

P-34. Observational Checklist. A data-gathering instrument of the optical scan type. This is a multipurpose tool that is used in many evaluations involving classroom observations.

*P-38. Data-gathering Instruments: School-Community Impact Cluster. An optical scan type of questionnaire that was designed specially for the evaluation of the school-community impact cluster.

P-55. Cassette Tapes for Training Teachers in Test Construction. A set of audio tapes covering the fundamentals of test construction and designed as self-instructional units with which teachers can build test construction skills. Accompanying these tapes are blank tapes and recording capacity which teachers can use to relay to the Division of Testing any questions or problems arising in the self-instructional effort.

P-56. Film Loops for Training Teachers in Test Construction. A set of film loops covering the fundamentals of test construction. Design, focus, and accompaniments are the same as for P-55.

P-57. Slide Films for Training Teachers in Test Construction. A set of film slides covering the fundamentals of test construction. Design, focus, and accompaniments are the same for P-55.

Facilitating diffusion products relating to ORE management function:

P-09. Brochure on Five New Instructional Strategies and Organizations. A public relations release that describes five innovative programs in the Philadelphia Public Schools. Printed in brochure form, it is intended for wide dissemination.

P-12. Brochure: Facts and Figures. A public relations release of the Philadelphia Public Schools. This booklet was prepared by the Office of Research and Evaluation and gives the "vital statistics" of the school system.

P-32. Management Information Center Bulletins. Releases of information to the public or to the school system from the MIC. These are produced by the Office of Research and Evaluation but released by the Superintendent's office.

Facilitating evaluation products relating to ORE management function:

P-05. Interim Reports 1971 (Dept. of Instructional Systems Research). A single document consisting of mid-year reports of the status of various projects across the school district. The report intends to convey information that permits examination of the congruency between project operations and attainment of stated goals.

P-06. Quarterly Report Jan-Mar 1971 (Dept. of Field Operations Research). A single document consisting of reports for the specified quarter covering the activities of the various District Research Associates (DRA) in relation to specific projects or studies being pursued within their respective districts. The report conveys, in addition, other specific activities engaged in by the DRA in relation to system-wide projects, e.g., Title I etc.

P-24. Alphabetic Pupil Directory. A listing of all pupils in the Philadelphia Public Schools. This directory is published annually primarily as a tool useful to teachers, principals, and superintendents. It is computer printed from the Pupil Data System.

P-25. *Assignment Order Directory*. A listing of all pupils in the Philadelphia Public Schools that is computer produced from the Pupil Data System. It shows class assignments, room numbers, teachers, etc. A by-product of this listing is in the form of actual grade-book sheets for the teacher.

P-41. *Status of Evaluations Chart*. A bar chart prepared by the Department of Instructional Systems Research which lists the projects being evaluated, the source of funding for those projects, the individual or group evaluation assignments, and 20 steps in the evaluation process plus the 16 steps included in the End of Year Report Procedures. The bars are filled in as each step is completed for each of the projects, thus permitting any director an instant review of the status of all evaluation activities.

P-62. *Description of the Resource Management System (PPBS) in the Development Project*. A document setting forth the purposes of the project, the set of documents to be produced in support of those purposes, and specific project stages and their related activities. The ultimate objective is to effect approved improvements in the Planning-Programming-Budgeting System.

P-63. *Overview of the Historical Development of PPBS in the Project ORE Site*. A document prepared by the Director of the Division of Resource Management outlining the evolution of the PPBS project and its antecedents within the school system. The document summarizes the scope and breadth of involvement by various levels of school personnel and outside consultants, and further identifies the dimensions of the system requiring priority work.

EVENTS:

Focal diffusion events relating to ORE *management* function:

*E-47. *Providing Management Information to Decision Makers.* An ongoing event, this is the responsibility of the ORE Executive Director. It encompasses the strategy and timely conveyance of appropriate information to decision makers at any level or location. Decision makers are considered to include all school and community personnel, with the conveying of information to the community subject to direct approval of the Board.

*E-50. *Staff Development (School Staff)*. An ongoing event conducted by the Department of Field Operations Research which is comprised of activities relating to the enhancement of teacher (and principal) skills in: (*a*) test administration; (*b*) interpretation of test results; and (*c*) use of test results.

E-65. Presentation to National Conference of Users of PPBS. An event carried out by the Director of the Division of Resource Management in which the historical development, current needs, and projected outcomes of the PPBS project within the ORE site were presented to a conference of persons representing, on a national scale, populations using the management technique.

Facilitating development event relating to ORE management function:

*E-46. Setting of General Production Guidelines for Operation of Office of Research and Evaluation. An event initiated by the Executive Director comprised of a series of activities aimed at establishing agreed upon parameters of project and evaluation requirements and the time frames in which major activities are to be accomplished. Various products and activities result and follow on from this event including defined schedules and monitoring activity in relation to them. All division and department directors participate in setting these guidelines.

*E-48. Definition of Strategic Reporting Processes and Timing. An ongoing event, the responsibility of the ORE Director, which encompasses the identification of information needs, particularly in relation to accountability factors, and the point in time at which delivery of information is apt to have maximal effect. Considered here are such information increments as are relevant to instruction, system-wide budgeting, and the compatability of project objectives with the system's framework of goals and objectives.

Facilitating evaluation event relating to ORE management function:

E-02. Development of New ORE Staff. An ongoing set of events designed to integrate new ORE staff with the philosophies, objectives, and operations of the office and the school district as a whole.

E-03. Selection of New ORE Staff. An as-needed set of events which follows a prescribed procedure for selecting and hiring new personnel for the ORE. The procedure includes oral examination of applicants by an examining committee and the filing of the results for future selection in score order.

*E-49. Determination of Priorities Within Each District. An ongoing event conducted by the Director of Field Operations Research which is comprised of activities facilitating the fixing of objectives, determination and coordination of measurements to be taken, and support of other identified needs. One major result of these activities is to clarify priorities on the basis of minimal redundancy of effort across the school system, and involves coordination with other divisions in ORE.

Facilitating evaluation event relating to ORE production function:

*E-14. Analysis of Data from the Evaluation of the School-Community Impact Cluster. An event which occurred during the determination of the impact of a group of projects related to school-community relations.

CONDITIONS:

Focal development condition relating to ORE management function:

*C-52. Maintained District Research Associate Program: A condition sought by the Director of Field Operations Research in which the services of District Research Associates are sought after by districts within the school system. (See output description P-07.) The activities in support of this condition include: (a) guiding associates in ways to interface with school people; (b) providing necessary resource support to the associate; (c) interacting with district personnel to enhance associate credibility; and (d) negotiating district uses of associate and the staffing pattern employed.

Focal development condition relating to ORE production function:

*C-53. Services for Teacher Developed Tests. A condition established by the Director of the Division of Testing in which teachers may be assisted in the development of focused objectives and related measures and in which administrators are assisted in managing various testing programs. A long range commitment is to establish, through field recognition of the need, a pupil assessment specialist position within the districts in support of this condition. (See the Appendix for an array of tasks relating to this output, plus output description P-55, P-56, and P-57.)

*C-54. City-wide Standardized Testing Services. A condition--the central focus of the Division of Testing--in which various performances within the school system are monitored, processed, and interpreted in such a fashion as to provide data upon which decisions, judgments, or hypotheses may be derived regarding various programs or objectives.

Focal diffusion condition relating to ORE management function:

C-67. Informed Public. A condition sought by the Office of Research and Evaluation in which the tax paying public and the community at large have available to them sufficiently relevant information to make decisions about the school system based on an accurate view of school operations and educational outcomes. Activities which support achieving this condition are subject to Board approval and are sensitive to the limitations of data and the various ways in which certain data can be misinterpreted.

Facilitating evaluation condition relating to ORE management function:

*C-43. Atmosphere for Constructive Criticism. A condition sought by the Director of the Division of Instructional Research and Development in which all members of his staff willingly submit their efforts to the scrutiny of colleagues toward the end that what is produced is improved and strengthened. The condition is facilitated by such specifications as responding to a request for a critique within one week from the date of request.

Output map. Figure 3 illustrates the interdependencies of the selected outputs of the ORE described above. In examining the map, the reader should bear in mind that with the identification of all possible outputs additional linkages might be included where none are now shown. Additionally, the focus has been to illustrate those outputs identified in a manner as free from the time dimension as possible so as to communicate the functional influences of the outputs on each other. In ignoring the time dimension, outputs that might appear in a particular sequence for production purposes may not be represented in like order. To reiterate, then, the output map is an attempt at indicating the interdependencies of a selected set of outputs.

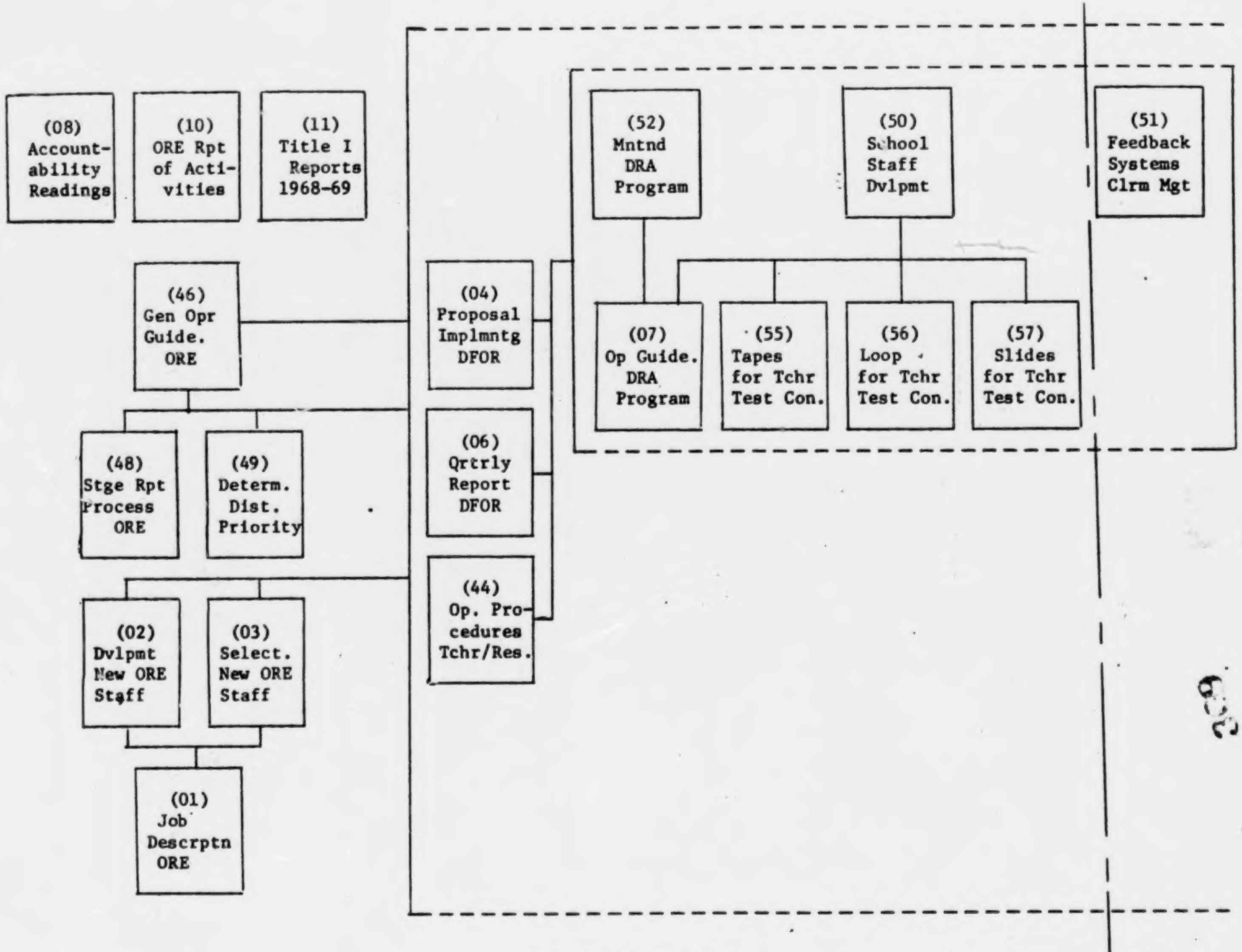
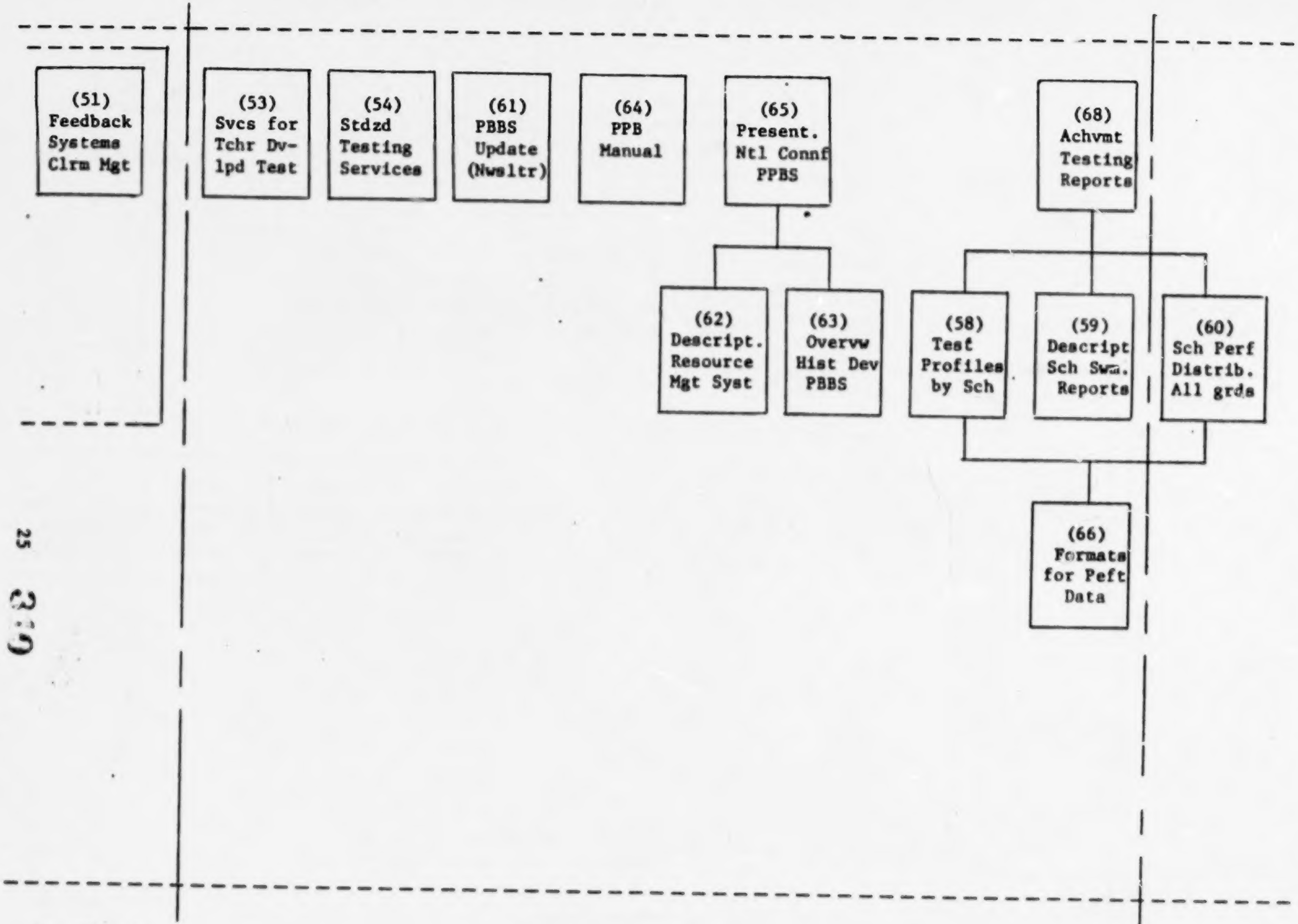

(08) Accountability Readings
(10) ORE Rpt of Activities
(11) Title I Reports 1968-69
(46) Gen Opr Guide. ORE
(48) Stge Rpt Process ORE
(49) Determ. Dist. Priority
(02) Dvlpmt New ORE Staff
(03) Select. New ORE Staff
(01) Job Descrptn ORE
(04) Proposal Implmntg DFOR
(06) Qrtrly Report DFOR
(44) Op. Procedures Tchr/Res.
(52) Mntnd DRA Program
(50) School Staff Dvlpmt
(51) Feedback Systems Clrm Mgt
(07) Op Guide. DRA Program
(55) Tapes for Tchr Test Con.
(56) Loop for Tchr Test Con.
(57) Slides for Tchr Test Con.

FIG. 3. Output map.

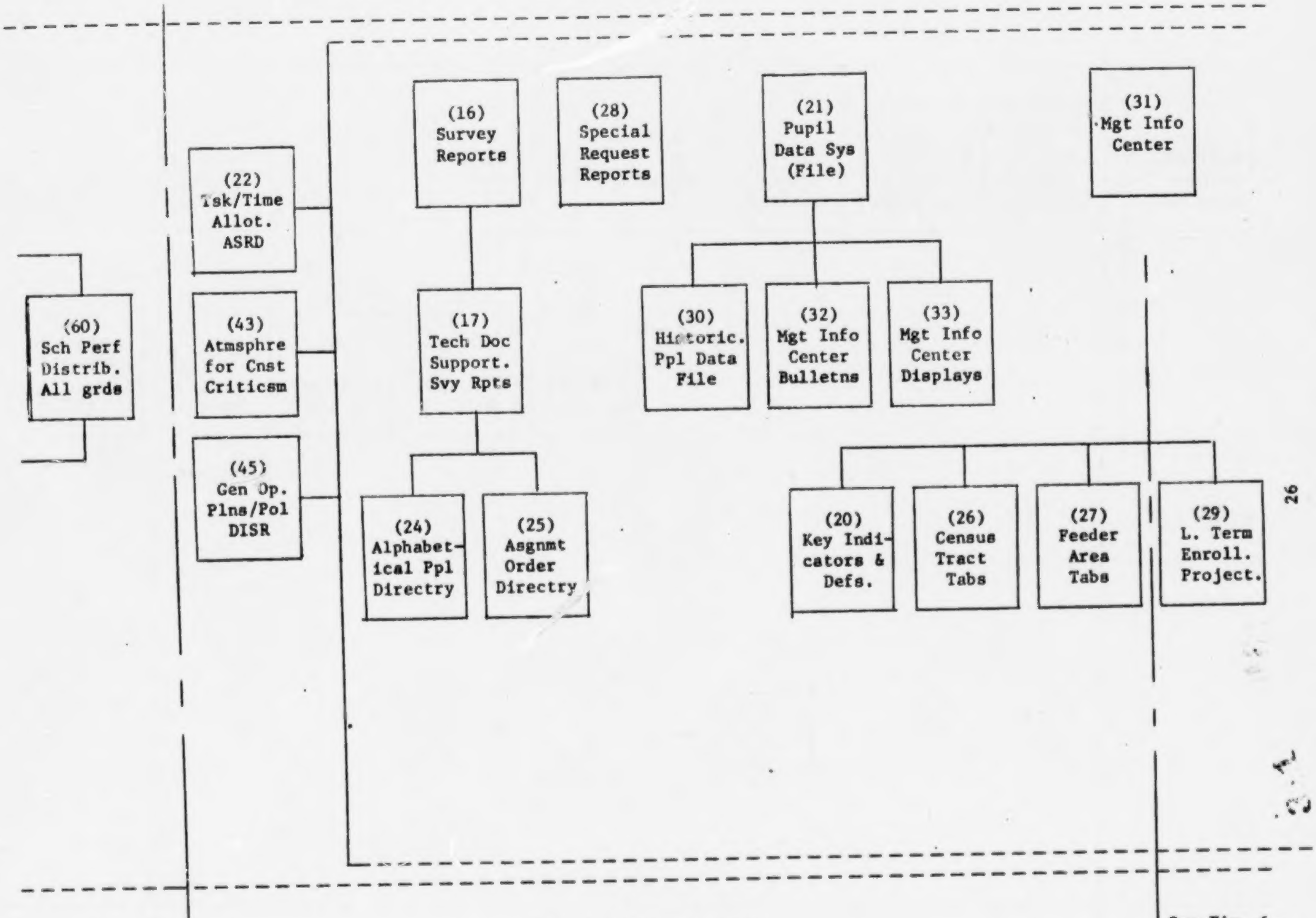
See Fig. 4


(51) Feedback Systems Clrm Mgt
(53) Svcs for Tchr Dv-lpd Test
(54) Stdzd Testing Services
(61) PBBS Update (Nwsltr)
(64) PPB Manual
(65) Present. Ntl Conf PPBS
(62) Descript. Resource Mgt Syst
(63) Overvw Hist Dev PBBS
(68) Achvmt Testing Reports
(58) Test Profiles by Sch
(59) Descript Sch Swm. Reports
(60) Sch Perf Distrib. All grds
(66) Formats for Peft Data

See Fig. 3.

FIG. 4. Figure 3 cont.

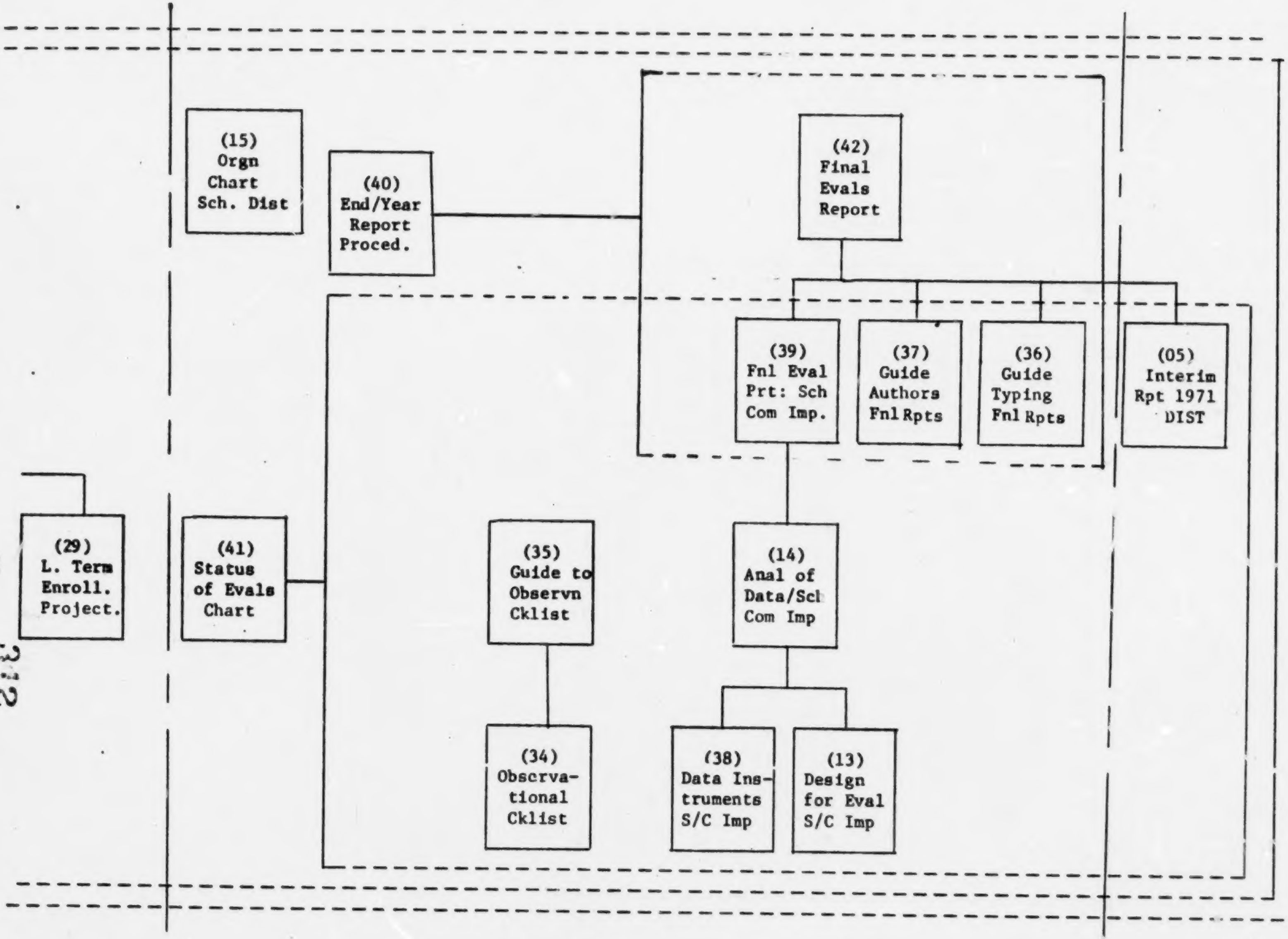
See Fig. 5.


(60) Sch Perf Distrib. All grds
(22) Tsk/Time Allot. ASRD
(43) Atmsphre for Cnst Criticsm
(45) Gen Op. Plns/Pol DISR
(16) Survey Reports
(17) Tech Doc Support. Svy Rpts
(24) Alphabetical Ppl Directry
(25) Asgnmt Order Directry
(28) Special Request Reports
(21) Pupil Data Sys (File)
(30) Historic. Ppl Data File
(32) Mgt Info Center Bulletns
(33) Mgt Info Center Displays
(31) Mgt Info Center
(20) Key Indicators & Defs.
(26) Census Tract Tabs
(27) Feeder Area Tabs
(29) L. Term Enroll. Project.

See Fig. 4.

FIG. 5. Figure 3 cont.

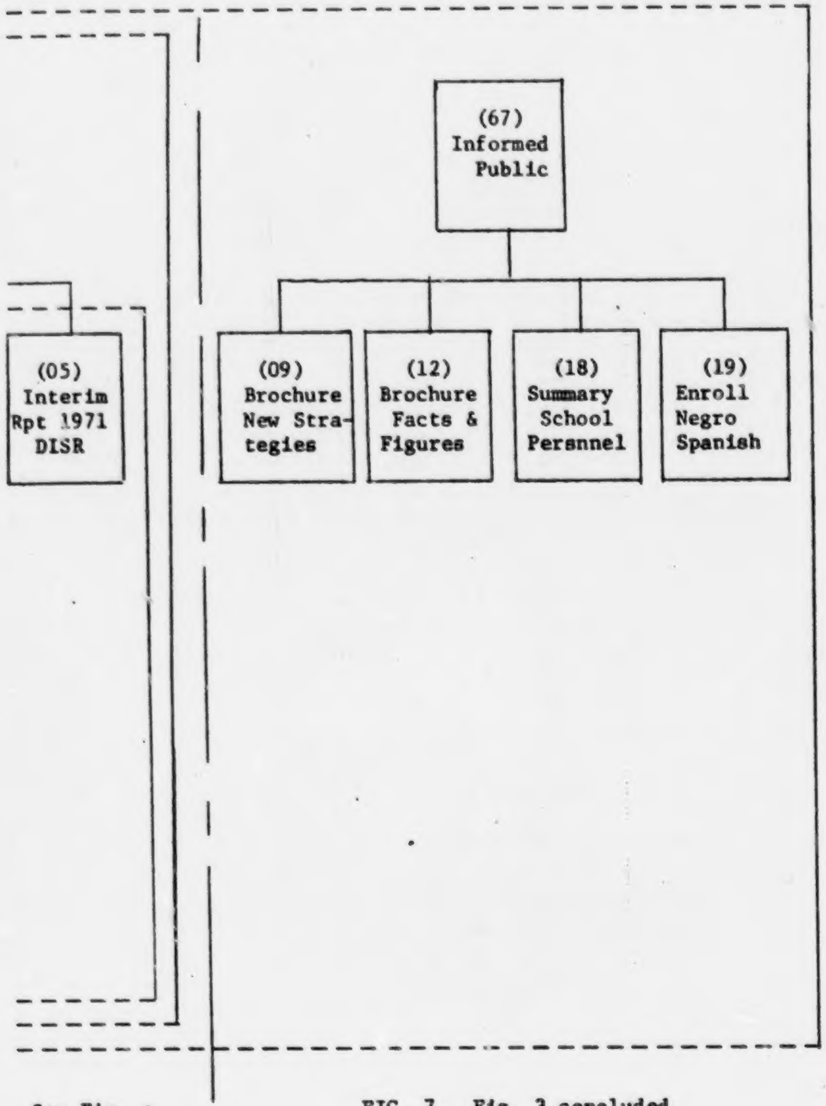
See Fig. 6.


(15) Orgn Chart Sch. Dist
(40) End/Year Report Proced.
(42) Final Evals Report
(39) Fnl Eval Prt: Sch Com Imp.
(37) Guide Authors Fnl Rpts
(36) Guide Typing Fnl Rpts
(05) Interim Rpt 1971 DIST
(29) L. Term Enroll. Project.
(41) Status of Evals Chart
(35) Guide to Observn Cklist
(14) Anal of Data/Sch Com Imp
(34) Observa-tional Cklist
(38) Data Ins-truments S/C Imp
(13) Design for Eval S/C Imp

See Fig. 5.

FIG. 6. Figure 3 cont.

See Fig. 7.


(67)
Informed
Public
(05)
Interim
Rpt 1971
DISR
(09)
Brochure
New Strategies
(12)
Brochure
Facts &
Figures
(18)
Summary
School
Persnnel
(19)
Enroll
Negro
Spanish

See Fig. 6.

FIG. 7. Fig. 3 concluded.

Chapter III: Summary of the Data

Data were gathered around specific outputs selected from those described in Chapter II. The interviews sought to elicit for each output selected the standards by which one judges the satisfactory completion of the output, the tasks required to generate an output meeting those standards, and the enablers (knowledges, skills, sensitivities) which facilitate the generation of that output. Presented first is a summary discussion of each of the major category sets of data, i.e., standards, tasks, and enablers, followed by a series of tables which present the frequencies with which the various categories of statements were made within each set.[1] To summarize the parameters of the data gathered, the following outputs were selected for interview and further examination.

P-13	Design for the Evaluation of the School-Community Impact Cluster
E-14	Analysis of Data from the Evaluation of the School-Community Impact Cluster
P-20	Key Indicators and Definitions
P-21	Pupil Data System
P-38	Data-gathering Instruments: School-Community Impact Cluster
P-39	Final Evaluation Report: School-Community Impact Cluster
P-42	Final Annual Report of Evaluations
C-43	Atmosphere for Constructive Criticism
E-46	Setting of General Production Guidelines for Operation of ORE
E-47	Providing Management Information to Decision Makers
E-48	Definition of Strategic Reporting Processes and Timing
E-49	Determination of Priorities Within Each District
E-50	Staff Development (School staff)
P-51	Feedback Systems (ongoing classroom management)
C-52	Maintained District Research Associate Program
C-53	Services for Teacher Developed Tests
C-54	City-wide Standardized Testing Services

In reading the tables, when one or more of these outputs are missing it simply means that no data were tabulated for the output in that category.

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[1] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is represented in the table only by the category label and its numerical coding.

Standards Held for ORE Outputs

The statements elicited from interviewees are varied, but patterns emerge when one examines the interrelationships between output standards (Table 2), process standards (Table 3), and their related outputs. In a broad sense two categories stand out. In relation to the production of an output itself, the "goal attainment" standard refers to outputs achieving or actually performing that which they were intended to achieve or perform. From a management point of view, favorable response or reactions from others is considered important. Thus, one can see the concern for output performance plus responses from others indicating satisfaction with it. Review of the original statements contained in the Appendix will provide additional elaboration of the manner in which favorable reactions, for example, are expressed.

Tasks Pertaining to Output Attainment

A total of 324 task statements were elicited from nine interviewees relative to 17 outputs. Approximately two-thirds of these statements involve direct, production types of tasks while the remainder involve those generally thought of as management. Table 4 indicates the frequencies of citations across a broad range of task clusters for most outputs. Attention is again invited to the Appendix for the original statements, especially for those categories in which there are multiple citations for an output.

Significant frequencies are noted for the following:
(a) Designing the output
(b) Producing the output
(c) Collecting/processing data
(d) Assessing the output quality
(e) Effecting accountability
(f) Effecting quality control
(g) Facilitating relationships
(h) Diffusing information within project.
The significance of these data is discussed later in this chapter.

Enablers Pertaining to Output Attainment

Consideration of enablers is in relation to categories of knowledges, skills, and sensitivities. A brief discussion of the citations within each of these categories is provided, followed by a discussion of the interrelationships of the data within the general enabler set.

Knowledges. The most frequently cited knowledge categories included:

(a) Subjects related to RDD&E
(b) Technical/professional topics
(c) Project variables: external.

TABLE 2

Output Standards Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Standards for Outputs (Category code no. and label for coding set J-1) 02 Quantity of outputs/data	03 Quantity of effort expended	04 Communication and clarity	05 Utility or value	06 Acceptance by users	09 Lack of errors/discrepancies	11 Appropriate design/content	12 Goal attainment	13 Acceptance by others (in proj.)	16 Compares favorably	18 Satisfactory appearance	21 Sources of variance	22 Function	23 Successfully constrains/guides	30 Lack of negative feedback	32 Created by reputable producer	Output Totals
P-13	Design for Evaluation of the Community Impact Cluster								1		3		1					5
P-14.	Analysis of Data from Evaluation of the Community Impact Cluster	1			2			1			1		1					6
P-20	Key Indicators and Definitions					1				1							1	3
P-21	Pupil Data System (file)				1		1		1				1					4
P-38	Data-gathering Instruments: School-Community Impact Cluster		1				1	1										3
P-39	Final Evaluation Report: School-Comm. Impact Cluster	1						2					1					4
P-42	Final Annual Report of Evaluation				1		1		1			1						4
P-43	Atmosphere for Constructive Criticism			1											1			2
P-46	Setting of General Production Guidelines of Operation of Office of Research & Eval.						1		2							1		4
P-47	Providing Management Info. to Decision Makers			1		1			1					1				4
P-48	Definition of Strategic Reporting Processes and Timing								2									2
P-49	Determination of Priorities within Each District								1									1
P-51	Feedback Systems (Ongoing Classroom Management)								2									2
P-52	Maintained District Research Associate Program				1													1
P-54	City-wide Standardized Testing Services					1			1									2
	Category Totals	2	1	2	5	3	4	4	12	1	4	1	4	1	1	1	1	47

TABLE 3

Process Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Processes (Category code no. and label for coding set J-2)															
No.	Label	02 Personnel are satisfied	03 Minimum correction	04 Deadlines are met	05 Acceptable level of output	07 An expected activity occurs	16 External cooperation gained	17 External enthusiasm evident	20 Performance respected	25 Staff reflect trust	32 Resources available on request	33 Personal growth/productivity	34 Impact of effort favorable	35 Outputs distributed/requested	41 Guidelines are followed	43 Policy constraints minimal	Output Totals
P-13	Design for Evaluation of the Community Impact Cluster						1										1
P-14	Analysis of Data from the Evaluation of the Community Impact Cluster		1														1
P-20	Key Indicators and Definitions							1					1				2
P-39	Final Evaluation Report: School-Community Impact Cluster												1				1
P-42	Final Annual Report of Evaluation	1		1					1	1			1				5
P-43	Atmosphere for Constructive Criticism					1			1	1			1			1	5
P-46	Setting of General Production Guidelines for Operation of Office of Research & Evaluation			1	1						1			1			4
P-47	Providing Management Info. to Decision Makers										1	1		1			3
P-48	Definition of Strategic Reporting Processes & Timing										1						1
P-49	Determination of Priorities within Each District												1				1
P-50	Staff Development (School Staff)													1			1
P-51	Feedback Systems (Ongoing Classroom Management)														1		1
P-52	Maintained District Research Associate Program							1					1				2
P-54	City-wide Standardized Testing Services												2				2
	Category Totals	1	1	2	1	1	1	2	2	2	3	1	8	3	1	1	30

TABLE 4

Tasks Cited for Each Output Analyzed

Project Outputs No.	Label	01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	07 Diffusing the output	21 Procuring professional staff	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	25 Maintaining job satisfaction	26 Facilitating growth of staff	28 Maintaining equity among staff	29 Facilitating relationships	30 Effecting info flow patterns	31 Diffusing info within project	32 Diffusing info beyond project	33 Effecting decision mechanisms	Output Totals
		Clusters of Tasks (Cluster code no. and label for coding set NO)																			
P-13	Design for Evaluation of the Community Impact Center		1	15	1													1			18
P-14	Analysis of Data from the Evaluation of the Community Impact Cluster	2		1	7	2		1		1		1									15
P-20	Key Indicators and Definitions	2	2		1	2	2			1							1	1	1		13
P-21	Pupil Data System (File)	1		2	7	5	5			2	1					6					29
P-38	Data-gathering Instruments: School-Community Impact Cluster		2	2	14	1	4					4								1	28
P-39	Final Eval. Report: School-Community Impact Cluster	3	1	4	10	6	5	1		1		4				14		2			51
P-42	Final Annual Report of Evaluation				8		6	1		8	1	3	1	2					1		31
P-43	Atmosphere for Constructive Criticism											4	3	4	2		3	2		2	20
P-46	Setting of General Production Guidelines of Operation to Decision Makers	1	1	4	1					11		4						3			25
P-47	Providing Management Info. to Decision Makers			2	1	3			1							1	3	1	1	1	14
P-48	Definition of Strategic Reporting Processes and Timing	1				3				5		2				2		2			15
P-49	Determination of Priorities Within Each District		1		1	1				1		1	2					3			10
P-50	Staff Development (School Staff)				2	3			3		1	1		1		1		2			14
P-51	Feedback Systems (Ongoing Classroom Management)			1	3	1														1	6
P-52	Maintained District Research Associate Program													1		3					4
P-53	Services for Teacher Deve. Tests		1		4	1			1					2		1	1	1			12
P-54	City-wide Standardized Testing Services	5		3		6			2							3					19
	Cluster Totals	15	9	34	60	34	22	3	7	30	3	24	6	10	2	31	8	18	3	5	324

The content of the knowledge requirements within those categories may be examined in the Appendix. Generally they involved a range of knowledge concerning data collection techniques and instrumentation, the design of studies, and technical equipment (see Table 5).

Skills. The citations of skills categories encompassed a broad range of skills. Both the number of differing skills and the frequency of their citation were marked for those outputs having to do with the School-Community Impact Cluster (P-13, E-14, P-38, P-39). Additional items of interest are the problem solving, self-discipline, planning and using equipment categories. Table 6 summarizes the distribution of 73 skills categories across 14 outputs.

Sensitivities. Table 7 contains the frequency distributions of 77 sensitivity citations for 14 outputs. The frequencies of citation for Outputs P-38 and P-39 reflect concern for those people being measured and reported back to (or about), beginning with the development of measurement instruments. Other frequent citations included:

(a) Limitations of analyses/data
(b) Willingness to work as needed
(c) Respect for/trust in others

and several more. While no sensitivity is cited significantly more often than others it is of interest to note that more than one-third of the sensitivities listed are cited four times or more.

Interrelationships among the enablers. The emphasis given the various categories across each of the enabler sets can be summarized as follows. One needs knowledge of the tools of RDD&E and the targeted environment; skill in planning, producing, and utilizing those tools; and sensitivity to the impact of data collection efforts and the limitations of the data generated.

Discussion of the Output Data

The character of the data generated around 17 outputs appears consistent with several significant impressions gained from being onsite. Extended discussion of these impressions appears in Chapter V. For the present purposes, however, it is noted that standards and tasks are geared toward the generation of quality outputs sensitive to the problems of the field and the needs of decision makers. The goal is to produce outputs which meet whatever objectives are established for them and to transmit those outputs to others in such a manner that they are understood, utilized, and generally looked upon with favor. Not surprisingly (for a research and evaluation effort), enablers focus on knowledges and skills within the specialties of RDD&E and a broad range of sensitivities which enhance the probability of positive impact.

TABLE 5

Enabling Knowledges Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Enabling Knowledges (Category code no. and label for coding set S-1)														Output Totals
		02 Subjects learned in courses	03 Subjects related to RDD&E	04 Technical/professional topics	05 Project focus topics, external	06 Project variables: external	07 Project operation: general	08 Project operation: specific	17 Writing styles	21 Management techniques	22 Use of equipment/systems	23 Char's of target audience	25 Sources of info/materials	28 Group dyn/decision processes	30 Errors in strategies/judgment	
P-13	Design for Evaluation of the Community Impact Cluster		2	5							1	1				9
P-14	Analysis of Data from the Evaluation of the Community Impact Cluster		1	4							1					6
P-20	Key Indicators and Definitions			1	1	1										3
P-21	Pupil Data System (File)	1	1	5									1			8
P-38	Data-gathering Instruments: School-Community Impact Cluster		1	1	1	2			1							6
P-39	Final Evaluation Report: School-Community Impact Cluster	1	2		1	4	1	1							1	11
P-42	Final Annual Report of Evaluation	1			1	1				1						4
P-46	Setting of General Production Guidelines of an Operation of Office of R & E		3	1												4
P-47	Providing Management Info. to Decision Makers		4											1		5
P-48	Definitions of Strategic Reporting Processes & Timing		4													4
P-49	Determination of Priorities within Each District		1				1									2
P-50	Staff Development (School Staff)	1														1
P-51	Feedback Systems (Ongoing Classroom Management)				1						2					3
P-52	Maintained District Research Associate Program	2														2
	Category Totals	6	19	17	5	8	2	1	1	1	4	1	1	1	1	68

TABLE 6

Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (Category code no. and label for coding set S-2)																									
No.	Label	01 Teaching	02 Facilitating people interaction	03 Translating content to media	05 Programming project events	07 Programming technical equip	08 Analytical reading/study	09 Analytical problem solving	10 Analytical data handling	11 Disciplining self	14 Writing	17 Interpreting language	19 Planning/conceptualizing	21 Tracking activities/goals	24 Explicating goals/procedures	25 Applying measurement tools	26 Locating/maintaining info	27 Using equipment/systems	30 Adapting to situation/demands	31 Taking another's perspective	33 Communicating clearly	38 Using resources effectively	39 Constructing measurement tools	40 Defining	45 Assessing personal performance	48 Establishing credibility	Output Totals
P-13	Design for Evaluation of the Community Impact Cluster		1			2	1	2				1	1					3									11
P-14	Analysis of Data from the Evaluation of the Community Impact Cluster					2	1					2						3				1					9
P-20	Key Indicators and Definitions							1									1		1					1			4
P-21	Pupil Data System (File)			1	1	1		1		2			3														9
P-38	Data-gathering Instr.: School-Community Impact Cluster		3								1	1		2							1		1				9
P-39	Final Evaluation Report: School-Community Impact Cluster		1					1	1	1	1	1							1		1				1		9
P-42	Final Annual Report of Eval.	1	1		1			1					2			1											7
P-46	Setting of General Production Guidelines of an Operation of Office of R & E		1					1		1																	3
P-47	Providing Management Info. to Decision Makers							1		1										1							3
P-48	Definition of Strategic Reporting Processes and Timing							1		1																	2
P-49	Determination of Priorities within Each District				1										1												2
P-50	Staff Development (School Staff)																									1	1
P-51	Feedback Systems (Ongoing Classroom Management)																						1				1
P-52	Maintained District Research Associate Program	1								1											1						3
	Category Totals	2	7	1	3	5	2	9	1	7	2	5	6	2	1	1	1	6	2	1	3	1	2	1	1	1	73

TABLE 7

Enabling Sensitivities Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Sensitivities (Category code no. and label for coding set S-3)																											
No.	Label	02 Capabilities and limitations	03 Needs of self and others	05 Content of subject matter	06 Worth in disciplines/methods	13 Language barriers	16 Existing value systems	18 Potential conflict of interest	19 Supportiveness required	20 Unstated obligations	21 Limitations of analyses/data	22 Responses of target audience	28 Admitting error/adopting	30 Response sets of tgt audiences	31 Nature/scope of output	33 Need for excellence in work	34 Willingness to take guidance	35 Need to communicate fully	36 Feeling of personal security	37 Willingness to delegate	40 Contractual obligations	42 Enthusiasm	44 Interested in activities	47 Willingness to work as needed	48 Common sense	50 Intellectual openness	55 Respect for/trust in others	56 Habit of thoroughness	Output Totals
P-13	Design for Evaluation of the Community Impact Cluster	1	1		1		1								1										1				6
P-14	Analysis of Data from the Evaluation of the Community Impact Cluster																		1										1
P-20	Key Indicators and Definitions																1									1			2
P-21	Pupil Data System (File)	1			2												1		1					1		1			7
P-38	Data-gathering Instruments: School-Community Impact Cluster	2			1	1										1		1	1			1						1	9
P-39	Final Evaluation Report: School-Community Impact Cluster					1			1					1		2					1	1					3		10
P-42	Final Annual Report of Evalu.		1							1		1		1					1				1				1		7
P-43	Atmosphere for Constructive Criticism							1																2			1		4
P-46	Setting of General Production Guidelines of an Operation of Office of R & E						1				2		1	1						1			1	1					8
P-47	Providing Management Info. to Decision Makers			1			1				2		1	1	1					1			1	1					10
P-48	Definition of Strategic Reporting Processes and Timing						1						1	1						1			1	1					6
P-49	Determination of Priorities within Each District										1																		1
P-50	Staff Development (School Staff)											2																	2
P-52	Maintained District Research Associate Program				1								1							2									4
Category Totals		4	2	1	3	2	4	1	1	1	3	3	4	3	2	3	2	1	4	3	1	2	4	6	1	2	3	1	77

Chapter IV: Supplementary Data

Additional data with respect to this site visit come from questionnaire techniques as well as frequency orderings of the various classifications given all outputs identified. The sections to follow include: (a) classification of the outputs; (b) summary of staff background; (c) adequacy of support systems; (d) summary of selected project management factors; (e) summary of the significance of various general categories of work; (f) summary of project funding; (g) discussion of supplementary data.

Classifications of Output Characteristics

Outputs may be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Functi[illegible] setting, management, or production), (c) Level (focal, component, or facilitating), (d) Character (knowledge, technology, implementation, or information), and (e) Stage of completion. These five schema are represented in Table 8 for each project (ORE) output identified, with frequencies summarized for each category.

Summary of Staff Backgrounds

Table 9 reflects the backgrounds of 12 persons responding to questionnaires in terms of degrees held and related professional experience. Reference is made to the synopsis of the project in Chapter I for a reveiw of the professional specialties represented in this table. It is to be noted that degrees or years of experience in the field do not correlate appreciably with project leadership. Chapter V considers the implications of this in relation to other factors involved with ORE operations.

Adequacy of Support Systems

In terms of manpower resources, the 12 respondents were about evenly divided between perceptions that the resources were "reasonably adequate" and "a bit tight." Time lines and available periods of performance were seen as essentially reasonable, with indications of shortness in some instances, particularly those in which there was a direct interface with individual schools. Respondents were divided evenly on the adequacy of financial resources, from reasonably adequate, to a bit tight and "extremely short." The latter rankings seemed to stem from an awareness on the part of some staff of the potentialities involved with their individual activities and/or responsibilities, resulting in a feeling that the inability to accomplish various ends more fully compromises the objectives involved.

TABLE 8

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																	
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Job Descriptions	X				X				X		X			X					
E-02	Development of New ORE Staff		X			X				X										X
E-03	Selection of New ORE Staff		X			X				X										X
P-04	Proposal for the Implementation of the Department of Field Operations Research	X			X					X		X				X				
P-05	Interim Reports 1971 (Dept. of Instructional Systems Research)	X				X				X				X		X				
P-06	Quarterly Report Jan.-Mar. 1971 (Dept. of Field Operations Research)	X				X				X				X			X			
P-07	Operational Guidelines for District Research Associate Program	X				X				X				X		X				
P-08	Paper on Accountability in Education ("Accountability Readings")	X				X		X					X		X					
P-09	Brochure on Five New Instructional Strategies and Organizations	X				X				X			X				X			
P-10	Report of Activities (1968-1969)	X				X		X						X	X					
P-11	Title I ESEA Annual Report (1968-1969)	X				X		X						X	X					
P-12	Brochure: Facts and Figures	X				X				X			X			X				
*P-13	Design for Evaluation of the School-Community Impact Cluster	X				X				X		X				X				
*E-14	Analysis of Data from the Evaluation of the School-Community Impact Cluster		X				X			X								X		
P-15	Organizational Chart for the Philadelphia School District	X					X	X						X						X
P-16	Survey Reports	X					X	X						X						X
P-17	Technical Documents Backing Up Survey Reports	X					X		X			X								X
P-18	Summary of Personnel in the Philadelphia Public Schools	X					X		X					X						X
P-19	Enrollment of Negro and Spanish-speaking Pupils in the Philadelphia Public Schools	X					X		X					X						X
*P-20	Key Indicators and Definitions	X					X		X					X				X		
*P-21	Pupil Data System	X				X		X				X				X				
P-22	Task and Time Allotment for the Administrative and Survey Research Division	X				X				X		X			X					
P-24	Alphabetic Pupil Directory	X				X				X				X						X
P-25	Assignment Order Directory	X				X				X				X						X
P-26	Census Tract Tabulation	X					X		X					X						X
P-27	Feeder Area Tabulation	X					X		X					X						X
P-28	Special Request Reports	X					X	X						X						X
P-29	Long Term Enrollment Projections	X					X		X					X						X
P-30	Historical Pupil Data File	X				X			X			X								X
P-31	Management Information Center (MIC).	X				X				X			X							X
P-32	Management Information Center Bulletins	X				X				X			X							X
P-33	Management Information Center Displays	X				X			X				X							X
P-34	Observational Checklist	X					X			X		X			X					
P-35	Guide for Using Observational Checklist	X				X				X		X			X					

TABLE 8 concluded

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-36	A Guide for Typewriting Final Reports	X				X				X		X					X			
P-37	A Guide for Authors of Final Reports	X				X				X		X					X			
*P-38	Data-gathering Instruments: School-Community Impact Cluster	X					X			X		X				X				
*P-39	Final Evaluation Report: School-Community Impact Cluster	X					X		X					X				X		
P-40	End of Year Report Procedures	X				X				X		X							X	
P-41	Status of Evaluations Chart	X				X				X				X		X				
*P-42	Final Annual Report of Evaluations	X					X	X						X					X	
*C-43	Atmosphere for Constructive Criticism			X		X				X										X
P-44	Operating Procedures for Teacher-Researchers	X				X				X		X			X					
P-45	General Operational Plans and Policies for the Division of Instructional Research and Development	X			X					X		X				X				
*E-46	Setting of General Production Guidelines for Operation of Office of Research and Evaluation		X			X				X										X
*E-47	Providing Management Information to Decision Makers		X			X		X												X
*E-48	Definition of Strategic Reporting Processes and Timing		X			X				X										X
*E-49	Determination of Priorities Within Each District		X			X				X										X
*E-50	Staff Development (School Staff)		X			X		X												X
*E-51	Feedback Systems (for ongoing classroom management)	X					X	X										X		
*C-52	Maintained District Research Associate Program			X		X		X												X
*C-53	Services for Teacher Developed Tests			X			X	X												X
*C-54	City-wide Standardized Testing Services			X			X	X												X
P-55	Cassette Tapes for Training Teachers in Test Construction	X					X			X		X						X		
P-56	Film Loops for Training Teachers in Test Construction	X					X			X		X						X		
P-57	Slide Films for Training Teachers in Test Construction	X					X			X		X						X		
P-58	School Test Performance Profiles by School (ITBS Testing)	X					X		X					X						X
P-59	Description of School Summary Reports (ITBS Testing)	X					X		X					X						X
P-60	School Performance Distributions—All Grades Tested	X					X		X					X						X
P-61	PPBS Update (Newsletter)	X				X		X					X							X
P-62	Description of the Resource Management System (PPBS) Development Project	X				X				X				X			X			
P-63	Overview of the Historical Development of PPBS in Project Site	X				X				X				X			X			
P-64	Planning-Programming-Budgeting Manual	X				X		X				X				X				
P-65	Presentation to National Conference of Users of PPBS		X			X		X					X				X			
P-66	Formats for Performance Data Presentations	X				X				X		X								X
C-67	Informed Public			X		X		X												X
P-68	Achievement Testing Reports	X					X	X						X						X
Classification Frequencies[b]		33	9	5	1	40	23	19	13	35	0	20	8	25	8	10	7	7	2	33

[a] The specific output characteristics are identified as follows:

Structure
p - product
*e - event
c - condition

Function
ps - policy setting
m - management
p - production

Level
f_1 - focal
c - component
f_2 - facilitating

Character
k - knowledge
t - technology
i_1 - implementation
i_2 - information

Completion Stage
1 - completed over one year ago
2 - completed 3 to 12 months ago
3 - completed within last 3 mos.
4 - currently in progress
5 - not yet underway
6 - on going (continuous)

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[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

TABLE 9

Distribution of Selected Project Personnel by Degree, Years of RDD&E Experience, and Number of Projects as Principal Investigator

Highest Degree Held			Years RDD&E Experience				Number of Projects as Princ. Investg.
Doctorate	Master's	Bchlr's	1-5	6-10	11-15	16-20	
x				x			"50-75"
x			x				0
x						x	10
x			x				10
x			x				0
	x			x			15
	x		x				1
	x			x			12
	x		x				11
	x		x				2
	x			x			0
		x	x				0
5	6	1	7	4	0	1	--

Summary of Selected Project Management Factors

The management factors under consideration include the perception of staff regarding the Project (ORE) structure, the degree of coordination required within the ORE, and the degree of coordination necessary with other elements of the context. For the most part, the 12 respondents regard the ORE structure as corporate in nature. The Executive Director, on the other hand, modified this structure by suggesting it to be organic, or one in which there is "wide lateral and vertical exchange as required--and/or desired."

In relation to the coordination of efforts within the ORE operations, most respondents considered a moderate amount sufficient. Three respondents indicated that coordination should be very extensive and involved, particularly for those having primary responsibility for effecting exchanges of information. Near unanimity in recognizing the highly involved nature of the coordination of activities with the context was evidenced. This factor seems consistent with the patterns of sensitivity discussed in Chapter III and the frequency of task citations in related categories.

Significance of Various Categories of Work

Table 10 reflects the frequencies with which the 12 respondents ranked nine general categories of work across eight levels of significance. The scale used for the ranking and shown in the table is as follows:

0. Definitely not a part of my project activity, does not apply.
1. Under unusual circumstances may be a minor part of my work.
2.
3.
4. A substantial part of my work.
5.
6.
7. A most significant part of my work.

There are several notable features of Table 10. As might be expected from a sampling of management to mid-management level personnel, the heaviest loading of significant work appears as supervising and coordinating. Even so, every general category is represented by at least one person who sees it as a most significant part of his work. With the exception of data collection activities nearly everyone sees himself relating to each of the categories of work at one level or another. Better than three-quarters of the respondents see writing, designing and planning, and meeting/consulting/advising as at least substantial parts of their work. This means that even those persons not generally thought of as within the management structure find themselves engaged in activities similar to those of management, especially the service functions such as meeting and advising.

TABLE 10

Frequencies of Significance Ratings for Nine Categories of Work

General Categories of Work	Level of Significance							
	0	1	2	3	4	5	6	7
Reading	–	–	–	6	3	1	1	1
Designing/planning project procedures	–	1	–	–	2	3	2	4
Developing research tools, data instruments	–	3	1	1	2	2	–	3
Collecting project data	3	2	1	2	–	–	1	3
Analyzing data	–	–	3	3	1	1	1	3
Writing	–	1	–	1	4	1	1	4
Supervising/coordinating	–	1	–	2	–	1	–	8
Teaching or training	1	1	2	2	3	–	2	1
Meeting/consulting/advsy	–	–	1	1	3	2	1	4

Summary of Project Funding

The ORE renders a service function to the school system and to the educational problems tackled by it. In so doing it represents an ongoing enterprise dependent upon funding from a variety of sources in order to maintain a reasonable level of quality in workmanship and impact on the field it serves. Operationally, it participates in the location and procurement of such funds as are necessary to achieve various objectives beyond those afforded by local district funding. The sources of all funding and the approximate percentage of budget each represents are as follows:

Local school district	35%
U.S. Office of Education	50
Other federal agencies (unspecified)	10
State	2
Private foundations	1
College or university	1
Industry	1

One factor which has expanded the USOE role in the funding of the ORE has been a number of contracts relating to over all evaluation of the impact of Title I and Title III projects being conducted on a city-wide basis. The dispersion of such projects has made it reasonable to aggregate the evaluation components within a common performance function. Funds from other sources usually are targeted for a relatively narrow set of objectives, and while substantial for the objectives, represent minor levels of funding in relation to total operational expenditures.

Discussion of Supplementary Data

In general, the supplementary data reflects a staff having diverse academic preparations and relatively few years of experience in educational RDD&E related activities. The staff performs a broad range of service functions in a coordinated and relatively efficient manner. Standards, tasks, and enablers seem consistent with stated objectives, and the resources in support of those objectives, for the most part, seem adequate. All typical categories of work are represented as being significant parts of the individual efforts of some, presumably those in whom the highest levels of competency reside, with responsibility shared in varying degrees by others.

The sample represented by the supplementary data (excluding output data) is an inverted-pyramid-vertical cut of the ORE staff, i.e., major management personnel at the top levels are included with two divisions represented at the next level, and one division at the lower points of the organizational structure. While this may seem to overbalance data in favor of management activity, it seems justified on two counts. The first is in the degree of commonality of tasks between the higher and lower staff levels. The second is that it was considered necessary to sample across all divisions of the ORE in order to gain a realistic impression of the interrelationships between major operations and functions.

Chapter V: Project Dynamics

The ORE, as a project, appears operationally as a service unit of a large school system performing such RDD&E activities as are considered necessary for the orderly and systematic monitoring and improvement of educational services to the community. In order to convey to the reader some of the "feel" of the operation, extended discussion of various aspects of organizational structure and interpretive comment in relation to the preceding data chapters follows. Topics discussed include: (a) interrelationships of the various divisions and departments within the ORE; (b) agency interrelationships; (c) interrelationships of personnel; and (d) general observations.

Interrelationships of the ORE Divisions and Departments

While the various divisions and departments hold responsibilities for relatively exclusive sets of activities, there is a need for close coordination of those activities in order that maximum utility is achieved from each effort. For example, the Division of Administrative and Survey Research (DASR) holds responsibility for control of official forms and is in a position to advise on matters relating to data collection instruments. Various classes of data required in performing other specific tasks, such as evaluation of a project, may be acquired from the Division of Testing or the DASR. This minimizes the need to generate new measures. The Division of Testing (DT), in addition to performing services around standardized testing, is developing instructional tools for teachers to aid them in utilizing test results and in building their own measures. The Department of Field Operations Research (DFOR) holds, in part, similar responsibilities for service-to-teachers and coordinates those efforts with those of the DT. One can readily intuit a great many other interrelationships from Figure 2 in Chapter II. The overall impression is that the organization carefully and systematically performs each of the functions required in such a manner as to facilitate the carrying out of the others, with emphasis on the storage of information so as to maximize retrieval capabilities.

Agency Interrelationships

The ORE staff considers the coordination of activities with the various schools, the administration, and other outside agencies to be highly involved. Relationships with test publishers were mentioned in an earlier chapter. Both the DFOR and the DT become involved with publisher representatives relative to test training for teachers. In order to maximize use of time, meetings must be scheduled at times when the involved teachers may participate. Meeting schedules must also reflect a sensitivity to overloading the teachers' extrainstructional responsibilities. Other relationships with schools deal with the generation, interpretation, and transmission of evaluative information in such a way that school personnel will feel responsive to this service as well as to instructional development services.

In relating to the Administration, it is a source of considerable pride within the DASR that maintained files of information are current within 30 days and that pupil data reflects less than .5% error in storage. Additionally, displays, overlays, and a variety of other information formats are kept current in the Board room in order that Board members have at immediate hand the bulk of significant information relevant to their ongoing deliberations. As "key indicators" are identified, one technique of display involves color coding certain indicators so that each element can be viewed simultaneously as it occurs throughout the system. In short, the relationships with the Administration involve close monitoring of their information needs and responding to those needs with accuracy and easy, ready communication.

Interrelationships of Personnel

The formal interrelationships of personnel are described by virtue of the organizational structure and unit interrelationships. Beyond those, however, are the relationships involving people. Consistent themes are expressed by the ORE staff such as mutual respect for each other, respect for competency, willingness to put forth extra effort to ensure proper coordination of effort, and the existence of an atmosphere for constructive criticism. The view being nurtured is one of looking upon a request for help as an act of respect, and the rendering of such help as a like act in return. An effort is carefully put forth to provide all personnel with sufficient information and support to accomplish their tasks, and it is assumed that each person is a professional capable of carrying out assigned tasks with dispatch.

Those professionals seen working together within the various divisions displayed shared commitment to a common goal; the generation of quality information with a minimum of interference with instructional operations in the field and a sensitive interpretation of that information to facilitate responsiveness to it. Put in another way, the ORE as a whole, seemed to share a commitment to rendering a service that was well received by the various consumers. Communications between people, both formal and informal, were calculated to keep all parties concerned abreast of their impact on people in the school system.

As would be expected, the faith and good humor of those working a majority of their time in the field and online with school teachers and administrators is taxed. In a Great City School System, the relationships between the practitioner and the "downtown office" are remote indeed. Any need seen by the practitioner as unfulfilled becomes a source of aggravation when support services are being rendered for which the practitioner (for the moment) sees no need. While there exists in this operation a basic distrust of the "downtown office" by many practitioners, people linkages are developing which may, over time, temper this lack of trust. Various interviewees stressed the necessity for making no promises that cannot be met and meeting all promises that are made. The management-related standards outlined in Chapter III suggest that this mode of operation is having a positive affect in the field.

General Observations

During the period of the site visit for the collection of data relating to this profile, the school system was facing a fiscal crisis which suggested that an early closure (one month) of the schools might be necessary. The anticipated date of closure was the second school day following the site visit. (Reference has been made earlier to the relationship of the school system to city and state government.) Failure of the state legislature to pass planned-for taxation bills led to deficits particularly difficult for school systems to absorb. In addition, there is a strong teacher affiliation with the labor union and this factor made negotiations for salary management, should the schools remain open, particularly delicate. It is, perhaps, a mark of the caliber and integreity of the professional men and women in the ORE that these conditions interfered neither with the work they had to accomplish nor the inputs they were providing for this data collection effort. The confidence and self-assurance displayed with respect to the value of their work to the educational system was consistent with those standards they cited as being held for their outputs. To that extent, it would appear that the staff does, indeed, operationalize the objectives set forward for the ORE. And where, in many places, research and evaluation activities are one of the first "luxuries" to go in the face of fiscal problems, it appears likely that the ORE has established most of its services as necessities.

Finally, one cannot help but be impressed with the enormity of the task in effecting systematic and responsible change in a context as large as that of the ORE, particularly in light of the many pressures for change being brought to bear upon the public schools today. In the present case, the impression is that increased money alone will not do it, but rather what is needed is the time to interact in good faith within the school system and to establish agreed upon, achievable goals toward which all may share a similar sense of commitment. Should the school system and the community provide such time, the ORE may become increasingly effective in facilitating improvements in the education of individual students and the marshalling of general community support of the schools through disseminating accurate, credible, and positive information regarding those schools.

Chapter VI: Implications for Training

Review of original output statements contained in the Appendix provides some insights into the competencies required to function in an RDD&E capacity within the milieu of a large public school system. There are, however, several other implications for training raised by the interviewed personnel on this site.

Essentially, the view is one of having good solid training in the tools of RDD&E, and their uses, of the sort offered in academic courses, and to learn the strategies of application through work in "real settings." The ORE staff reflects a posture which dictates that a person fresh from such education begins work at his estimated level of competence with respect to performance requirements locally established, and is advanced as increased competency is demonstrated. While staff members are encouraged and/or provided opportunity to seek advanced academic degrees, it is apparent from the data collected that position and responsibility are held by virtue of competence rather than only by academic rank. An interpretation one might place on this, in light of the relatively few years of experience held by staff, is that some operations or employers would rather complete the applied training of those academically prepared in RDD&E tools as opposed to graduate school production of the "complete" investigator. There seems to be some sense to this when one adopts the model that any given employer or location has the right to hold differing philosophies regarding education and its evolutionary change. If nothing else, one may consider that people themselves are different from place to place, (some people quarrel with this, either overtly or by classes of behavior exhibited) thus presenting a breadth of challenges no graduate course could hope to encompass.

Another aspect of training derived from this site visit has to do with "knowing what you want to do," then discovering or inculcating personal characteristics and styles which are successful in getting others committed, in the same sense, to "what you want to do." While this statement does not immediately offer the trainer much assistance, it is a fact that the ORE staff referred many times to the necessity for working out personal styles that are successful when interacting with others. Presumably they have found this preferable to the stereotyped "systems" or "sensitivity" approaches in "pure" form.

Patience and a real understanding of the environment in which work is accomplished is requisite to functioning in an environment similar to that of the ORE. For training purposes, this suggests trainers must nurture in the attitude of the trainee that those he hopes to serve are rational people behaving in rational ways and, in fact, are not the enemy. The criticalness of this characteristic is exemplified by the comment from one interviewee that it only takes one cynical or sarcastic remark overheard to undo months, and even years, of work in developing mutual trust with others.

The foregoing comments represent the more unique of the training considerations elicited from this site. To the degree that the site is an exemplary one and to the degree that those considerations have contributed to that attainment, the comments are well worth deliberating about in planning for training in educational RDD&E. Practically speaking, when one has developed a command of the tools, he must "get out of the ivory tower" and work in an intern-type capacity to develop appropriate response mechanisms in interacting with other "equally professional" people. He advances in scope of responsibility commensurate with the degree of success he has in facilitating the achievement of both short term and long range goals. Of particular importance is learning when it is more important to adapt the statistical tool rather than to coerce the environment to conform to an ideal statistical model.

Appendix

Appendix [illegible] Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. The statements were extracted from discussions with interviewees and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J:	Structure of Standards.
J-1	Standards against which outputs are judged (output oriented).
J-2	Standards against which processes and/or operations are judged (process oriented).
Code LM:	Primary Categories of Standards.

TASKS

Code NO:	Clusters of Tasks.

ENABLERS

Code S:	Structure of Enablers.
S-1	Knowledge.
S-2	Skill or ability to perform.
S-3	Sensitivity or awareness.
Code UV:	Primary Categories of Enablers (knowledges, skills, or sensitivities).

The codes associated with these three categories (standards, tasks, and enablers) are the same both here in the listing and as previously cited in the Chapter III tables.

Each of the 17 analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

P-13: Research Design

STANDARDS:

J	LM	
1	16	Sample selection is more carefully controlled than other studies reported in literature.
1	21	Any design compromises resulted in the least possible effect.
1	16	Sample is more representative than that used in other studies.

1 16	Low error rate confirms adequacy of data-gathering instruments.
1 12	80% response to questionnaires over entire effort.
2 16	High degree of interest and cooperation by schools in participating in evaluation effort.

TASKS :

NO	
02	Confer with evaluator and other consultant to define problem.
03	Decide to use questionnaire to parents to obtain data.
03	Determine questionnaire content.
03	Determine mode of delivery of questionnaire (through school classes).
03	Determine who was to receive questionnaire (parents, faculty).
03	Determine sample size on many available (largest sample possible within funds available) (3000).
03	Select sample from Senior H.S., Jr. H.S., Elementary I. (under 500) and Elem. II (over 500).
03	Select grades 1 and 6 from Elementary schools.
03	Select grades 7 from Jr. High schools.
03	Select grade 10 from Senior High schools.
03	Weight sample somewhat on basis of population.
03	Randomly pick schools to participate.
03	Determine which of selected schools would cooperate.
03	Include question on out-of-cluster programs for control purposes.
04	Modify parents' questionnaire for school administrators and teachers.
03	Plan analyses to perform on data.
03	Plan data compilation procedure.
31	Advise and instruct evaluator on data compilation procedures.

ENABLERS :

S	UV	
1	04	How to write programs in various computer languages.
1	04	What package programs are available.
1	22	How to run package programs.
1	04	Know computer operation in general.
1	03	Know basic survey techniques.
1	23	Know characteristics of the population you are studying.
1	04	Know limitations of various analysis techniques.
1	03	Basic statistical procedures and techniques.
1	04	Know sophisticated analysis techniques.
2	07	Writing computer programs in FORTRAN.
2	07	Writing computer programs in CODOL.
2	27	Operating Computers.
2	27	Sorting cards (computer).
2	09	In selecting techniques and treatments appropriate to problem.
2	09	Skill in understanding problems of those requiring help.
2	02	Skill in tactfully convincing others of the necessity.
2	08	Skill in purposeful reading.
2	17	Skill in translating technical language into terms meaningful to others.

2 19	Skill in visualizing the extent of output that will result from requested analyses.
3 48	Mathematical common sense.
3 06	Sensitivity to when techniques are not applicable.
3 16	Sensitive to other people's desires to use overly sophisticated techniques.
3 02	Sensitive to others' ability to comprehend technical terminology.
3 31	Be sensitive to the reality of the scope of the problem.
3 03	To the reality of a person's request.

P-14: Data Analysis

STANDARDS:

J LM	
1 16	Analysis is more stringently controlled than other studies.
2 03	Programs required minimum debugging.
1 02	Amount of data available from study supplies material for from 10 to 15 research papers.
1 05	Analysis format will serve many purposes.
1 21	No false weighting results from analysis.
1 05	Compilations are meaningful to users of data.
1 11	Analysis is practical, not fancy.

TASKS:

NO	
05	Punch data on computer cards.
03	Provide layout for card punching.
05	Compile data to establish requirements for card layout.
01	Identify possible "contingency errors" (eight).
01	Select most pertinent portions of questionnaires to use for first run analysis.
22	Retain all data for subsequent analysis.
24	Select as usable responses those that have less than 10 unmarked answers and no more than two logical errors.
04	Write program to select usable responses from total deck.
04	Write program to repunch selected responses but eliminating all items relating to programs in which logical errors accurate.
04	Write program to do final analysis in most useful tabulations.
04	Include in program controls for accuracy of responses.
04	Operate computer to perform analysis in form of printout.
04	Devise scoring system to correlate response accuracy, participation and attitude.
04	Use canned programs to compute correlation, s.v.'s etc. to show interrelationships between items.

07	Deliver printouts to evaluator for use in report.

ENABLERS:

S	UV	
1	04	How to write programs in various computer languages.
1	04	What package programs are available.
1	22	How to run package programs.
1	04	Know computer operation in general.
1	03	Basic statistical procedures and techniques.
1	04	Know as many analysis techniques as possible.
2	07	Writing computer programs in FORTRAN.
2	07	Writing computer programs in COBOL.
2	27	Operating computers.
2	27	Sorting cards.
2	27	Reproducing cards.
2	08	Skill in reading technical writing.
2	17	Skill in interpreting technical writing.
2	38	Skill in applying others' ideas and techniques to your problems.
2	17	Skill in communicating (translating) output data in terms meaningful to clients.
3	36	Do not be frightened by machine.

P-20: Key Indicators

STANDARDS:

J	LM	
1	13	Superintendents approval and involvement.
2	34	Frequent inquiries about key indicators.
1	32	Represents the best thinking of many people.
2	17	Acceptance by Great Cities Council.
1	06	Favorable comment by users.

TASKS:

NO	
02	Confer with Supt. in relation to need for "feeling the health of the system."
01	Study data file categories for possible key indicators of "health of system."
04	Prepare tentative list of key indicators.
02	Talk to people in schools, subsidy office, counselors, principals to obtain their views of tentative list, and add to tentative list.
30	Determine where in school system to obtain data on each key indicator.

01 Study form in which data, on key indicators, is available.
06 Refine list to include most appropriate and readily available data.
06 Rate indicators on list as to availability, degree of confidence in data, etc.
05 Phase in implementation of data gathering on key indicators.
22 Make reports to Supt. on key indicators.
05 Maintain undated data on key indicators in Info. Center.
32 Present key indicators (in writing) to Great Cities Council.
31 Publish Mgt. Info. Center (MIC) Bulletin on key indicators for distribution throughout PPS adm.

ENABLERS :

S UV
1 06 Operation of school system.
1 05 How data is to be used by decision makers.
1 04 General knowledge of prolbem solving and systems approach.
2 09 Analytical approach to problems.
2 26 Able to "touch base" with all appropriate people for input and potential use.
2 30 Able to formulate alternate approaches.
2 40 Able to define problems.
3 34 Can accept criticism and changes in your reports.
3 50 Go into it with an open mind.

P-21: Pupil Data File

STANDARDS :

J LM
1 09 0.5 % error rate in entire data system is not exceeded.
1 21 Built in computer control systems actually reject cards with errors.
1 12 Able to supply data requested at time requested in form requested.
1 05 Users get required data upon request.

TASKS :

NO
01 Conferred with planning arm of PPS to determine parameters of and needs for a data system--a tool to help solve problems (done prior to incumbent).
23 Contract with commercial system company for design—Edward Iveson (prior to incumbent).

29	Contractor interacts with school people to identify school system needs (prior to incumbent).
04	Contractor prepares instruction and forms for data gathering (1967) in consultation with res. office.
05	Administer data gathering forms to classroom teachers.
03	Design method for maintaining inputs.
04	Prepare input forms for obtaining up-date information.
05	Test use of input forms in June and Sept.
06	Judge results of up-date tryout to be inadequate - best was 92% return--criteria for data file should be 99% or better.
29	Confer with principals and contractor to devise alternate method of up-date data gathering.
06	Select card file system as most appropriate.
03	Design card file system to include desires of principals.
04	Produce data card file for each school.
22	Assign clerk to maintain card file (each school).
05	Clerk indicates change of status on appropriate card, corrects any errors, etc.
06	Clerk marks card by tear to identify those with changes.
04	Plan periodic (1 time/8wks) pick-up system for school files through school transportation system ("Pony Express").
04	Pick up entire deck from a school on Friday.
06	Correct deck by making indicated changes on weekend.
29	Return deck on Monday completely undated.
29	Provide extra decks of cards, upon request, that are organized differently.
22	Manage the data file system for PPS.
06	Clerk marks status changes (graduation, transfers, etc.) on cards during spring up-date cycle.

TASKS:

NO	
05	Sort cards by school receiving transfers.
05	Integrate in-transfers into receiving school deck.
04	Prepare roll book leaves (for attendance records) for each class (clerk hired and trained by contractor).
29	Distribute roll book leaves to receiving teachers prior to start of school in fall.
04	Produce parent location cards.
29	Deliver parent location cards to school and to division of subsidies. (Subsidized students, parents must fill out additional forms-card provide mailing list.)

ENABLERS:

S	UV	
1	02	Educational statistics (courses).
1	03	Survey research (courses).
1	04	Be knowledgeable of systems approach.
1	04	Computer programming (courses).
1	04	Basic statistics (courses) (math).
1	04	Systems analysis (courses).
1	04	Pshychological statistics (courses).

1	25	Know who to talk to in order to obtain information.
2	03	Presenting data in terms meaningful to user.
2	05	Able to formulate a plan of action.
2	07	Skill in computer programming (practical experience).
2	09	Logically approaching problems.
2	11	Must be patient.
2	11	Can work under pressure.
2	19	Looking at many inputs--visualize variables.
2	19	Visualizing effect of variables.
1	19	In organizing a mass of detail.
3	02	Sensitive to problems and details of other's work.
3	06	Think in terms of "systems."
3	06	Analytical approach to problems.
3	34	Cannot be content to design in a vacuum.
3	36	At home with a mass of detail.
3	47	Willing to observe in field.
3	50	Do not have preconceived notions.

P-38: Data-gathering Instruments: School-Community Impact Cluster

STANDARDS :

J	LM	
1	09	Technically proper.
1	11	Appropriate to specific project.
1	03	Expenditure of great effort to be meticulous.

TASKS :

NO	
02	Use input from school principal in designing most practical form of instrument.
02	Work with team to identify content of evaluation.
04	Shape (write) draft of items for instrument covering content as specified by team decision.
04	Draft cover letter for instrument to match instructions to tentative items.
24	Critique tentative (draft) instrument with entire team and department head.
33	Decide to reduce size of instrument to one page by elimination of all but essential items.
06	Select essential items to include in final one-page instrument.
04	Make instrument in optical scan format so that machine scoring could be used. (N=4,000)
04	Modify parent's instrument to be appropriate for school staff use.
03	Plan evaluation to provide information for individual

	projects as well as cluster.
04	Draft instruments in approximate format (prototype).
06	Modify cover letter, instructions, wording and format on basis of tryout feedback.
06	Edit galley proofing of instruments.
04	Print parent's instrument and staff instrument in different colors.
04	Prepare printing copy with meticulous care in response-block sizes, print-size, etc.
03	Determine project identifiers to be included for each sample segment.
04	Type project identifiers in scale appropriate to instrument format.
04	Photo reduce project identifiers to size appropriate to instrument.
04	Overprint project identifiers on instruments.
06	Inspect all printed instruments to insure that there were no extraneous marks that would activate optical scan.
04	Make layout to provide blank spaces on each side of response-blocks to allow for printing inaccuracies.
05	Precode 4,000+ forms to identify respondents from which data was requested.
24	Check precoding for accuracy.
04	Package forms by school class for distribution.
04	Identify packages by school and class.
24	Check package identification for accuracy.
24	Check all returned instruments to insure that response marks will be picked up by optical scanner.

ENABLERS:

S	UV	
1	39	Formulating tentative questionnaire items about major content points to be evaluated.
1	06	Knowledge of local school system (operation).
1	06	Knowledge of local school system key personnel.
1	05	Knowledge of project being evaluated.
1	04	Know possible sources of error in instrumentation.
1	03	Know appropriate techniques for data gathering.
1	17	Course in expository writing.
2	02	Skill in participating with team to decide upon the essential questionnaire items.
2	21	Skill in meticulously checking all details.
2	02	Poise, maturity and social grace to maintain good relations.
2	35	Conveying to school people that researcher realizes that his demands are in excess of normal workload.
2	21	Maintaining sight of goal.
2	02	Communicate freely and comfortably with colleagues.
2	17	Ability to translate jargon into listener's or reader's language (meaningful terminology).
2	14	Ability to communicate (clearly and meaningful) adequately in writing.
3	06	Sensitive to the need for drafting all possibly needed questions to visualize essentials in context.
3	33	Sensitive to the need for meticulously checking all details.

3	35	Need for maturity and social grace to maintain good relations.
3	02	Sensitive to school people's workloads.
3	02	Sensitive to researcher's work being in excess of school people's normal workloads.
3	56	A habit of thoroughness and attention to detail.
3	36	Being able to do our job well.
3	13	Sensitive to what language is meaningful to target audience.
3	42	Enthusiasm for the job.

P-39: Final Evaluation Report: School-Community Impact Cluster

STANDARDS :

J	LM	
1	11	Design is aimed at measuring goals and objectives as stated for project.
1	11	Design uses sound and appropriate evaluation procedures.
1	21	Adequate control of variables has been applied.
1	02	High percentage of usable (data) return (80%).
2	34	Enthusiasm for eval. shown by others.

TASKS :

NO	
01	Become familiar with activities done in all projects composing cluster.
01	Study previous evaluations of individual projects to identify shortcomings and pitfalls.
01	Select content items for evaluation.
04	Design School-Community Questionnaire for parents.
04	Design School-Community Questionnaire for administrators/staff.
03	Utilize random sampling techniques to determine sample to be used (N=4,000).
31	Constantly communicate with other team members.
29	Meet with school principals to establish preliminary knowledge of coming evaluation.
29	Meet with school principals to determine most feasible ways of distributing questionnaires.
29	Meet with school principals to elicit their cooperation in data collection.
03	Plan evaluation to provide information for individual projects as well as cluster.
29	Confer with all project directors and school-community coordinators to gain background knowledge and alert them to forthcoming evaluation.
06	Modify sampling on basis of project director input.

31	Confer with design-analyst-team-member in relation to sampling technique to insure representative sample.
24	Confirm all background info. by personally checking out details.
05	Perform tryout of instruments with test group of parents.
29	Coordinate instrument try-out with school principals.
06	Confer with try out group (parents) to gain input for instrument modification.
24	Cross check all actions with other team member to insure inclusion of all inputs.
03	Determine project identifiers to be included for each segment of sample.
02	Request project personnel (e.g., school-community coordinator) to provide project descriptions to be included as part of identifiers.
03	Include project identifiers of out-of-cluster projects as control factors.
05	Determine coding required to identify respondents by school, class (teacher) etc.
05	Precode 4,000+ forms to identify respondent from which data were requested.
06	Check forms for cleanliness.
24	Check precoding for accuracy.
04	Package forms by school class for distribution.
04	Identify packages by school and class.
06	Check package identification for accuracy.
04	Affix pencils to each parent's form.
29	Send letter to each school district superintendent to advise him of impending evaluation.
29	Contact school principals personally to insure their cooperation.
29	Send follow-up letter to principals to insure their cooperation.
04	Write cover letters with instructions to each teacher.
04	Affix cover letters to packages of instruments.
29	Deliver packages to schools personally.
29	School-community coordinators contact parents delinquent in returning instruments.
29	School-community coordinators translate questions in Spanish speaking homes.
29	Confer with project director to achieve cooperation of school-community coordinators.
24	Check returned (completed) instruments to insure that all instruments in package actually belonged with that package.
06	Check all returned instruments to insure that response marks will be picked up by optical scanner.
05	Match returned staff forms with corresponding parent forms.
22	Devise file envelopes for permanent storage of completed instruments.
04	Deliver completed instruments (raw data) to analysis expert (team member) for analysis.
04	Pick up completed instruments personally.
29	Thank cooperating teachers and principals for assisting in data collection.
29	Write thank-you notes to teachers and principals.
05	Interpret printouts of analyses.

04	Write final report according to style manual.
07	Send final report to cooperating schools.
05	Visit school principals to explain how the report data pertains to their schools.

ENABLERS :

S	UV	
1	02	Practical knowledge of teaching.
1	03	Knowledge in a broad spectrum of research specialities.
1	03	Thorough knowledge of instrumentation.
1	05	Knowledge of projects composing cluster (project parameter).
1	06	Knowledge of staff.
1	06	Thorough knowledge of operation of school system.
1	06	Thorough knowledge of school system goals.
1	06	Know key personnel in school system.
1	07	Thorough knowledge of research department goals.
1	08	Knowledge of previously done evaluation.
1	30	Knowledge of previously made mistakes.
2	02	Maintaining good working relations throughout city schedule.
2	09	Experimentally competent.
2	10	Statistically competent.
2	11	Ability to profit from past errors.
2	14	Ability to communicate (clearly and meaningfully) adequately in writing.
2	17	Ability to translate jargon into listeners' or readers' language (meaningful terminology).
2	30	Work as a team.
2	35	Communicate respect for other people.
2	45	Ability to critique yourself.
3	13	Sensitive to what language is meaningful to target audience.
3	19	Sensitive to the need for good relations with principals and teachers throughout city.
3	30	Sensitive to misgivings and concerns of school prinicpals about forthcoming evaluation.
3	33	Desire for excellence in work.
3	33	Pride in work and team accomplishment.
3	40	Understand that we are a service unit.
3	42	Enthusiasm for the job.
3	55	Respect for other people.
3	55	Feeling of mutual respect for all colleagues.
3	55	Respect for management.

P-42: Final Annual Report of Evaluations

STANDARDS :

J	LM	
1	12	Evaluation report is timely there when needed.
2	04	Work progress is according to schedule.
2	02	Relaxed yet enthusiastic atmosphere among staff.
2	25	Mutual respect among staff members is evident.
2	20	Personal confidence in staff.
1	09	Data is displayed accurately (personal judgment).
1	18	Data is displayed pleasingly (personal judgment).
2	34	Favorable user feedback.
1	05	Evaluations provide data which people use to make decision.

TASKS :

NO	
26	Establish policy that research associate having responsibility for an evaluation be given full credit for that evaluation.
25	Give those responsible for an evaluation credit for it.
22	Establish policy that research assistants be given responsibility for one evaluation each year.
22	Establish policy that, normally, responsible associate be consultant to the assistants evaluation.
26	Encourage publication of technical journal articles by associates and assistants.
32	Approve ariticles before release.
22	Confer with staff to develop reasonable timelines.
22	Organize efforts of staff to achieve timely reports.
22	Schedule work flow to meet deadline.
22	Provide additional resources when production is falling behind schedule.
24	Monitor progress on all evaluations through open door policy.
22	Personally assist when deadlines threaten.
22	Establish milestones for the year's work.
24	Study evaluations reports as they are finished.
06	Work with review team to review, suggest, and make modifications to evaluation reports.
04	Write sections of final report in draft form.
06	Make suggested modifications.
04	Type "preliminary final" draft.
04	Draft introduction to final report.
04	Draft summary to final report.
06	Proof-read preliminary final draft.
06	Review preliminary final draft in relation to style.
06	Make corrections on preliminary final draft.
04	Type final report.
06	Proof-read final report.
24	Provide for another corrections cycle if necessary.
23	Arrange for printing of final report.
04	Print final report.
07	Receive and distribute final report to project directors, superintendents, school board , and funding agency.

04	Work with colleague to prepare style manual.
04	Write sections of final report as data becomes available.

ENABLERS:

S	UV	
1	02	Background in statistics.
1	05	Know context in which evaluations are to be conducted.
1	06	Familiarity with classrooms and instructors.
1	21	Staff experience (military).
2	01	Skill in classroom teaching.
2	02	Leadership experience (military).
2	05	Skill in managing a project from beginning to end.
2	09	Technical competence (Res., Eval. Stal. etc.).
2	19	Visualizing all possible contingencies.
2	19	Attention to minute detail.
2	25	Skill in observation.
3	03	Sensitive to subordinate need for recognition.
3	20	Don't ask staff to do anything you wouldn't do yourself.
3	22	Sensitive to user feedback.
3	30	Sensitive to the field considering the evaluators as a threat.
3	36	Comfortable when conferring with school official.
3	44	Interest in teacher behavior.
3	55	Respect the capabilities of your staff.

P-43: Atmosphere of Constructive Criticism

STANDARDS:

J	LM	
1	04	Documents produced are found by the consumer to be readable and understandable.
2	34	Outputs are responded to favorably by others, i.e., they appreciate the quality of effort expended.
1	23	Authors of documents regularly seek multiple critiques of their work.
2	07	Work critiqued is ultimately refined and improved.
2	20	Critiques requested are complied with within one week.
2	25	Staff reflects, by choice of critiquers, a respect for a related area of expertise held by another.
2	43	Necessity for issuance of policy statements are infrequent and relate to only those issues which involve division effectiveness.

TASKS:

NO	
28	Assign responsibility for making decisions to (set demands for)

personnel commensurate with the individual's actual working experience in the school district.

33 Discriminate between policy-decision making behaviors and Quality-control-of-output behavior.

24 Arrange for those having relevant expertise to critique top management products.

30 Specify, as a matter of policy, that colleagues who have been given documents to critique will do so within one week.

24 Follow-up with those asked to critique outputs to remind them of their responsibilities when they fail to respond properly.

30 Make explicit the view that being asked to critique another's work is an act of respect, as is the performing of the critique itself.

31 Convene meetings of involved staff to obtain their advice on proposed procedures, e.g., possible gaps, errors, etc.

30 Set a policy that at an output critique means that an output is "free game" for everyone involved.

25 Set a policy that an originating author of a document being critiqued retains the right to make no changes but must be responsible for support of the document.

24 Critique the documents produced by staff, particularly new staff.

26 Interact privately with an author of a document about its acceptability.

24 Direct changes in the documents produced by others on the basis of policy; suggest changes on the basis of opinion.

26 Provide to an author the information base (or source of it) supporting recommended changes in his document.

26 Encourage reworking of good work into a form suitable for publication under the author's own name.

26 Encourage ethical and professional considerations in setting of authorship, credits, etc.

28 Interact with various personnel producing documents to resolve issues of authorship on the basis of policy.

33 Develop policy statements only when the real, live issue involves a decision having implications for the effectiveness of the Division.

25 Encourage staff to initiate discussions on issues potentially involving policy, to see if informal resolution (as opposed to policy) is possible.

31 Convene discussion sessions to identify and eliminate my "straw man" issues.

25 Encourage lower management staff to limit the parameters of their personal publications to that content which resides within their level and area of jurisdiction and expertise.

ENABLERS:

S	UV	
3	55	Professional trust--accept colleagues, subordinates as being potentially capable of professional behavior and output.
3	47	Be willing to assume that all personnel have met the criteria for selection as a professional.
3	47	Be willing to hear the brunt of issues which arise in the

		face of social or political policy, e.g., that rules apply equally regardless of race, etc.
3	18	Sensitivity to not encroaching on another professional jurisdiction or area of expertise when preparing own material for publication.

P-46: Setting of General Guidelines for Operation of Research and Evaluation Office

STANDARDS :

J	LM	
2	04	Schedules are met within reasonable renegotiated limits.
2	32	**Evaluation data and reports are available on schedule and** when required.
1	30	Minimum of after-the-fact complaint from project directors about misinterpreted objectives or intents.
1	12	Data generation activities are carried out across the district with little redundancy or duplication of effort between Division offices, projects, etc.
1	09	Maximum utilization of data and resources reduces replication of known errors or incorrect assumptions.
2	05	Outputs of staff reflect adherence to standards of quality and excellence set forth for efforts.
2	35	Schools, administrators, and top-level management place increased demand on Office of Research and Evaluation as the major quality control arm of the district.
1	12	**Both process and program data is generated.**

TASKS :

NO	
03	Map R&E activities in terms of the various project activities within the school district.
03	Identify relationships between the objectives of various projects and evaluation strategies which might be used.
01	Initiate project definition cycle, the objectives and processes of each.
02	Develop an evaluation proposal.
22	Develop a time schedule--Gant chart format for research and evaluation activities relevant to the various projects.
03	Project requirements for the collection of preliminary data.
03	Project requirements for the collection of process data.
03	Project requirements for the reporting of preliminary and process data.
22	Elicit agreed upon points in time for reporting of data.

22	Elicit agreed upon point in time for final data collection, processing, analysis and reporting.
31	Conduct weekly meetings with Division Directors.
31	Review schedule of operations with Division Directors.
24	Monitor where people are, status of work, in relation to assignment (with Division Directors).
22	Renegotiate completion dates with Division Directors when deviations from schedule appear required.
22	Renegotiate resources with Division Directors to assure meeting of inflexible deadlines in the schedule.
24	Review with Division Directors the actual accomplishments of each week.
22	Obtain agreement with each project director on what each project is about.
31	Prepare a memorandum of agreement regarding the objective and purposes for each project.
04	Prepare a statement of project definition.
22	Define a proposed completion date for each project evaluation.
24	Monitor evaluation format and practices.
24	Monitor adherence to schedules.
22	Set testing schedules for each pre-post test scheduled for projects.
22	Schedule purchase or development of required measures.
22	Set evaluation appointments with project directors.

ENABLERS :

S	UV	
1	03	Good technical working knowledge of educational statistics.
1	04	Good technical working knowledge of learning theory.
1	02	Good technical working knowledge of curriculum development.
1	03	Knowledge of ins and outs of measurement and testing sufficient to advise superintendent and Board on the credibility of publisher performance contracts.
2	02	Be able to hold your own with research director contemporaries in other institutions with which cooperative ventures seem appropriate.
2	09	Specialization in some form of research or measurement.
2	11	Ability to engage in a quiet kind of persuasion until communication of data has been completed.
3	44	High academic interest and background.
3	21	Sensitivity to the meaning and limitations of gain scores as a means for determining payment on a performance contract.
3	21	Sensitivity to the limits of generalizable meaning to be given gain scores when performance contractor select lower performance population (higher loss factor following instruction).
3	30	Sensitivity to audience you are working with, their expectation of research and what they will permit at a given time.
3	16	Ability to place what you expect out of yourself into some convergent focus relative to the expectations of schoolmen.
3	47	Willingness to roll up your sleeves and do a job.
3	37	Willingness to serve in a staff position rather than a line position.

3 28 Willingness to accept a failure to persuade the first time around when data has a "novelty" characteristic.

P-47: Providing Management Information to Decision Makers

STANDARDS:

J	LM	
1	06	Recommendations for systems improvement and development are implemented.
1	12	Decisions for programming within budget is rationally based. on information generated.
2	32	Information generated is reported on a timely basis to decision makers.
1	04	Information presented to decision makers is understood by them.
2	33	Decision makers reflect confidence and faith in their ability to make rationally based decisions.
1	22	Decision makers receive information on program or project activity, pupil or program performance data, and a statement of the degree to which goals and objectives have been achieved.
2	35	Decision makers place increased demands for data to support broader areas of decision making.

TASKS:

NO	
03	Determine various classes of information required by decision makers.
03	Prepare a variety of specialized formats which most effectively communicate each class of information.
32	Meet with community action groups to answer questions, convey information.
30	Provide mid-level management staff with data on the effectiveness of instructional strategies.
30	Provide test scores and analysis data.
21	Provide staff development programs around test scores, their meaning and interpretation.
29	Provide teachers with descriptions of how data can be used in the classroom.
04	Prepare a modified Delphi rank ordering of project weighted according to a judged desirability scale.
05	Describe results of desirability rank ordering of projects by the various respondent groups.
05	Compare rank ordering of projects by research personnel with that of teachers and administrators.
30	Encourage broad based discussion of findings regarding projects, performance data, etc.
33	Participate in decision making with regard to making public

the various research and evaluation findings, e.g., consider accuracy, validity of data; its impact on the professional integrity of the school, etc.

31 Advise superintendent and school board on the credibility of a performance contract and when payment should be made.

ENABLERS:

S	UV	
1	03	Good technical working knowledge of educational statistics.
1	03	Good technical working knowledge of curriculum development.
1	03	Knowledge of ins and outs of measurement and testing sufficient to advise superintendent and Board on the credibility of publisher performance contracts.
1	28	Must know what decision making is about: it is political, emotional and somewhat rational.
2	09	Specialization in some form of research or measurement.
2	11	Ability to engage in a quiet kind of persuasion until communication of data has been completed.
2	31	Must be able to understand the decisions that are made for what they are (the bases for them, etc.).
3	44	High academic interest and background.
3	21	Sensitivity to the meaning and limitations of gain scores as well as a means for determining payment on a performance contract.
3	21	Sensitivity to the limits of generalizable meaning to be given gain scores when performance contractor select lower performance population (higher loss factor following instruction).
3	30	Sensitivity to audience you are working with, their expectations of research and what they will permit at a given time.
3	16	Ability to place what you expect out of yourself into some convergent focus relative to the expectations of schoolmen.
3	47	Willingness to roll up your sleeves and do a job.
3	37	Willingness to serve in a staff position rather than a line position.
3	28	Willingness to accept a failure to persuade the first time around when data has a "novelty" characteristic.
3	31	Must recognize that the decision making process is a sequence of events depending on good will.
3	05	Must understand the decisions to be made.

P-48: Definition of Strategic Reporting Processes and Timing

STANDARDS:

J	LM	
2	32	Information generated is timely and pertinent to the task for which it was reported.

1	12	Priorities for district activities are established on a rational basis.
1	12	Public knowledge of district activities is based on data accurately reflecting district performance.

TASKS:

NO	
31	Participate in strategic district planning sessions.
22	Develop basic guidelines for program budgeting.
22	Coordinate schedule of events for the various data collection efforts.
01	Review school program objectives submitted by program directors.
24	Set up a process for overall review of the objectives of various programs.
24	Make certain proposed program objectives fit within the framework of goals and objectives set by Superintendent and School Board.
31	Participate in initial review of budget summary prepared for total school district operations.
05	Provide documentation for financial data broken out relative to each separate proposed activity (for budget review).
29	Supply specialized financial data to Executive Cabinet, Superintendent and Deputies.
05	Prepare documentation of learner achievement, demographic studies, pupil populations requiring services, etc.
05	Prepare presentations of data for public hearings on budget, to make explicit the relationship between specified educational factors and the budget.
29	Prepare a slide-tape presentation on how to prepare budgets (to permit appropriate PPBS input).
22	Approve final budget.
22	Renegotiate level of Research and Evaluation operations based on final budget.

ENABLERS:

S	UV	
1	03	Good technical working knowledge of Educational Statistics.
1	03	Good technical working knowledge of learning theory.
1	03	Good technical working knowledge of curriculum development.
1	03	Knowledge of ins and outs of measurement and testing sufficient to advise superintendent and Board on the credibility of publisher performance contracts.
2	09	Specialization in some form of research or measurement.
2	11	Ability to engage in a quiet kind of persuasion until communication of data has been completed.
3	44	High academic interest and background.
3	30	Sensitivity to audience you are working with, their expectations of research and what they will permit at a given time.
3	16	Ability to place what you expect out of yourself into some convergent focus relative to the expectations of schoolmen.
3	47	Willingness to roll up your sleeves and do a job.

3	37	Willingness to serve in a staff position rather than a line position.
3	28	Willingness to accept a failure to persuade the first time around when data has a "novelty" characteristic.

P-49: Determination of Priorities Within Each District

STANDARDS:

J	LM	
1	12	Districts reflect awareness of priorities in their activities.
2	34	Districts have a plan of action and understand its implications.

TASKS:

NO	
25	Specify that reading program development has policy priority (School Board).
25	Specify that proposals and projects must be aimed at bringing pupils farther along toward educational goals (School Board).
04	Assist districts in obtaining baseline data to determine current performance of reading program.
05	Compile reading program data into meaningful format.
02	Assist district personnel in establishing and phrasing objectives.
31	Assist district personnel in the planning of proposals to support improvement of reading programs.
22	Prepare PERT and GANT charts for districts which show what is to be done, and when, to accomplish district objectives.
31	Assist districts in collaboration with testing division, in the preparation of a measurement program to support projects.
31	Assist districts in determining what measurement in the existing testing program can be attached to various objectives.
24	Institute monitoring systems which provide data to districts regarding project implementation.

ENABLERS:

S	UV	
1	03	Knowledge of various tests and instruments available.
1	07	Knowledge of various classes of data and information already being collected and on file.
2	24	Skill in the phrasing of measurable objectives.
2	05	Skill in the preparation of process charts for focused activities or projects.

3 21 An awareness of the nature of test data and its relationship to various learning objectives.

P-50: Staff Development

STANDARDS:

J	LM	
2	35	Teachers begin to request repeated use of instruments.

TASKS:

NO	
24	Monitor staff (including teaching staff) administration of tests to insure correct administration.
26	Assist teacher in correct interpretation and use of test results.
21	Show principals what they can find out from tests.
21	Show reading teachers what they can find out from tests.
23	Arrange with test publishers to make presentations to teachers explaining test print-outs.
21	Explain to teachers the concept of norm references testing as an information base rather than a judgment base.
05	Break out test results into skill areas.
05	Suggest, on the basis of test results, specific skill areas which might need attacking.
04	Develop ways of using norm referenced testing for diagnostic purposes.
31	Make sure everyone knows what everyone else is doing in negotiations with test publishers.
04	Work out, with Testing Division, a mathematical correction formula for out-of-level testing.
29	Distribute test publisher materials to staff.
31	Confirm with CTB the procedures for comparing out-of-level test results.
05	Make out-of-level test comparisons with child's test data as he progresses.

ENABLERS:

S	UV	
1	02	Knowledge of educational statistics and interpretation.
2	48	Must be able to establish and maintain credibility with teachers.
3	22	Sensitive to the reactions of school personnel to the test

	publisher representative charged with explaining test print-outs etc.
3 22	Sensitive to the fact that teacher reactions to testing are not very positive.

P-51: Feedback Systems (for ongoing classroom management)

STANDARDS:

J	LM	
1	12	Data is reported back to teachers within 24 hours of receipt of tests.
1	41	Activities of the Feedback System are limited to day-to-day instructional information requirements.
1	12	Expanded teacher utilization of summary (classroom) data in making adaptive decisions for instructional behaviors.

TASKS:

NO	
04	Develop record forms for collecting performance information on specific skill areas.
04	Develop optical scanning record forms for storage and retrieval of performance information on specific skill areas.
05	Process performance information.
04	Develop a program for processing performance data contained on optical scanning record forms.
03	Design the report to teachers to reflect correct answers, individual pupil errors, and class aggregate performance.
03	Identify performance information required for each activity on which feedback is required.

ENABLERS:

S	UV	
1	22	Know the capabilities of optical scanning equipment.
1	22	Know the data form required for optical scanning process.
1	05	Have knolwedge of the types of data useful to teachers in adjusting instructional behaviors.
2	39	Skills in test construction for a variety of instructional objectives.

P-52: Maintained District Research Assoc. Program

STANDARDS:

J	LM	
2	34	District administrators indicate district research associates serve a critical function in their districts.
1	05	District administrators utilize the services of the district research associate.
2	17	Districts reflect increased interest in establishing or maintaining district research associate positions for their discretionary use.

TASKS:

NO	
26	Coach district research associate on ways to provide inputs to districts.
29	Support district research associate in his district activities by providing the necessary resources, validation, etc.
29	Interact with district personnel in such a way as to give the district research associate credibility.
29	Negotiate staffing pattern and utilization of district research associates with district administrators.

ENABLERS:

S	UV	
1	02	Knowledge of what a school is.
1	02	An idea of what a school is about.
2	35	Must be able to talk the language of district personnel.
2	01	Experience as a teacher.
2	11	Must have patience.
3	37	Must be able to get your ego satisfaction in ways other than marching at the head of a parade.
3	37	Must be willing to accept the integrity of another's responsibility.
3	28	Must be willing to live with decisions which do not provide for standards of adequate evaluation.
3	06	Must be willing to let the performances of the evaluation effort speak for themselves.

P-53: Services for Teacher Developed Tests

STANDARDS:

No listings under this heading.

TASKS:

NO	
02	Assist teachers in developing instructional objectives.
29	Assist teachers in developing specific objective multiple choice type tests.
26	Encourage schools to recognize the need for a pupil assessment specialist.
26	Provide leadership assistance in the management of various testing programs conducted by district or school.
31	Respond to concerns, questions raised by teachers regarding performance measurement.
21	Train teachers in the construction of tests and the utilization of standardized test results.
04	Develop cassette tapes on test construction for training teachers.
04	Develop film loops on test construction for training teachers.
04	Develop slide films for training teachers in test construction.
30	Provide taping capability for teachers to record (and refer for answer) their questions and concerns on testing and test construction.
05	Conduct a needs assessment in terms of measurement competencies of instructional and administrative staff.
04	Develop a checklist for estimating the measurement competencies of instructional and administrative staff.

ENABLERS:

No listings under this heading.

P-54: City-wide Standardized Testing Services

STANDARDS:

J	LM	
1	06	Principals begin to see the relevance of standardized testing data to their decision-making responsibilities.

1 12	Principals make an increasing number of decisions based on data.
2 34	Teachers reflect increased understanding of standardized test data.
2 34	Instructional staff and administrators in general reflect increasing confidence in data.

TASKS:

NO	
21	Explain and interpret the use of standardized tests to teachers.
21	Explain to teachers and administrators the meaning and use of grade-equivalency scores.
05	Develop (as appropriate) summary charts and tables of performance data.
05	Compare pupil performance data with local and national norms.
05	Emphasize range and distribution of performance scores as more meaningful and inportant than comparisons of performance between populations on the basis of central tendency.
29	Collaborate with Administrative Research division to isolate effects of pupil migration in and out of public schools on aggregate performance data.
05	Discuss data generated with various administrative personnel (as such is possible to arrange).
03	Prepare descriptive information about tests and measures used to assess pupil performance.
05	Prepare statement of cautions in interpreting evaluation data being made public as a measure of program quality.
29	Interact with Instructional Research division for program information.
01	Identify goals and objectives being sought by programs.
01	Identify degree of individual pupil exposure to each program.
01	Identify specific pupil populations being reached by each program.
29	Interact with Administrative Research division for population characteristics.
01	Identify pupil and teacher attendance figures.
01	Identify racial distribution.
05	Analyze standardized test data in relation to various interacting effects: program, population characteristics, environmental characteristics.
03	Study alternative measures for pupil competencies.
03	Study measure for examination of teacher competencies as a source of variance in pupil performance.

ENABLERS:

No listings under this heading.

CASE PROFILE NO. 7

Written by
Herbert E. Hill

PROJECT TITLE: The Evaluation of the Early Childhood Education Program

[redacted]

AN EDUCATIONAL PROJECT CONCERNED WITH: Determining the effectiveness of the Early Childhood Education Program in satisfying specifications, including performance criteria, established for the program.

A PROJECT OF:
Appalachia Educational Laboratory, Inc.
P.O. Box 1348
Charleston, West Virginia 25325

This profile has been prepared according to

PROFILE FORMAT No. 3

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

This chapter is a brief introduction to the project for evaluation of the Early Childhood Education Program (ECE) at the Appalachia Educational Laboratory (AEL).

Synopsis of the Project

Title: Early Childhood Education Program Evaluation.

Responsible Institution: Appalachia Educational Laboratory, Inc.

Funding Source: U. S. Office of Education

Funding Duration: September 1968 to December 1971 (40 months).

Observation Date: April 1971.

Stage of Project at Observation: Entering final stages.

RDD&E Focus of Project: Educational evaluation.

Target Group Orientation of Project: Preschool children. (ages 3, 4, and 5)

Expected Outcomes:

1. Final report of Early Childhood Education Program evaluation.
2. Evaluation report of Early Childhood Education Program 1970-71 field test.
3. Evaluation report of Early Childhood Education Program 1969-70 field test.
4. Quarterly progress reports.

Level of Funding and Duration: Medium. (level 4 of 7 levels)

Agency Setting: Regional educational laboratory.

Staff Summary (at time of observation):

	Professional	Support
Total Full Time Equivalency (in man years):	2.25	
Number of Personnel Assigned:	4	2
Number of Consultants:	3	
Number of Doctorate Degrees:	3	
Number of Master's Degrees:	1	

Major Area Specialties of Professional Staff: education/teaching, statistics/measurement, psychology, and educational research.

Objectives, Rationale, and Significance of the Project

Many statistics (and within the last few years, much publicity) plot the generally low level of living standard in many rural Appalachian areas. Many people live in remote, disadvantaged areas, and children from these homes frequently are ill prepared for entry into elementary grades. The ECE Program of AEL established a three-pronged attack on the problem through:

1. A television series designed to teach basic cognitive skills.
2. A home visitor program to aid children in gaining the desired outcomes from the TV programs. Parents are also guided by the home visitors in assisting the child.
3. A mobile classroom to assist in developing social skills and to make available materials that are frequently not found in the disadvantaged homes.

The intent of the ECE Program is to develop a cost-effective system of preschool education particularly appropriate to the needs of rural Appalachia communities.

The achievement of such goals requires the objective evaluation and assessment of the program to insure applicability, the confirmation or rejection of assumptions underlying the program, and its general effectiveness in practice. The focal goal of the evaluation of the ECE Program is to determine and document the level of program success, as evidenced through field testing, in reaching its specific behavioral objectives for the specified population of children (three, four, and five years old).

Context in Which the Project Operates

Relationships to Other Agencies. Figure 1 illustrates the significant contextual influences and relationships of this project as identified from observation.

The evaluation of the ECE Program is being carried out by the Research and Evaluation Division, a separate division of the Laboratory. This is primarily summative evaluation, formative evaluation being conducted within the ECE Program itself.

The Laboratory management relationships are primarily through procedure approval, setting of policy, and liaison with the community and funding source (see Appendix A: AEL Model of Development).

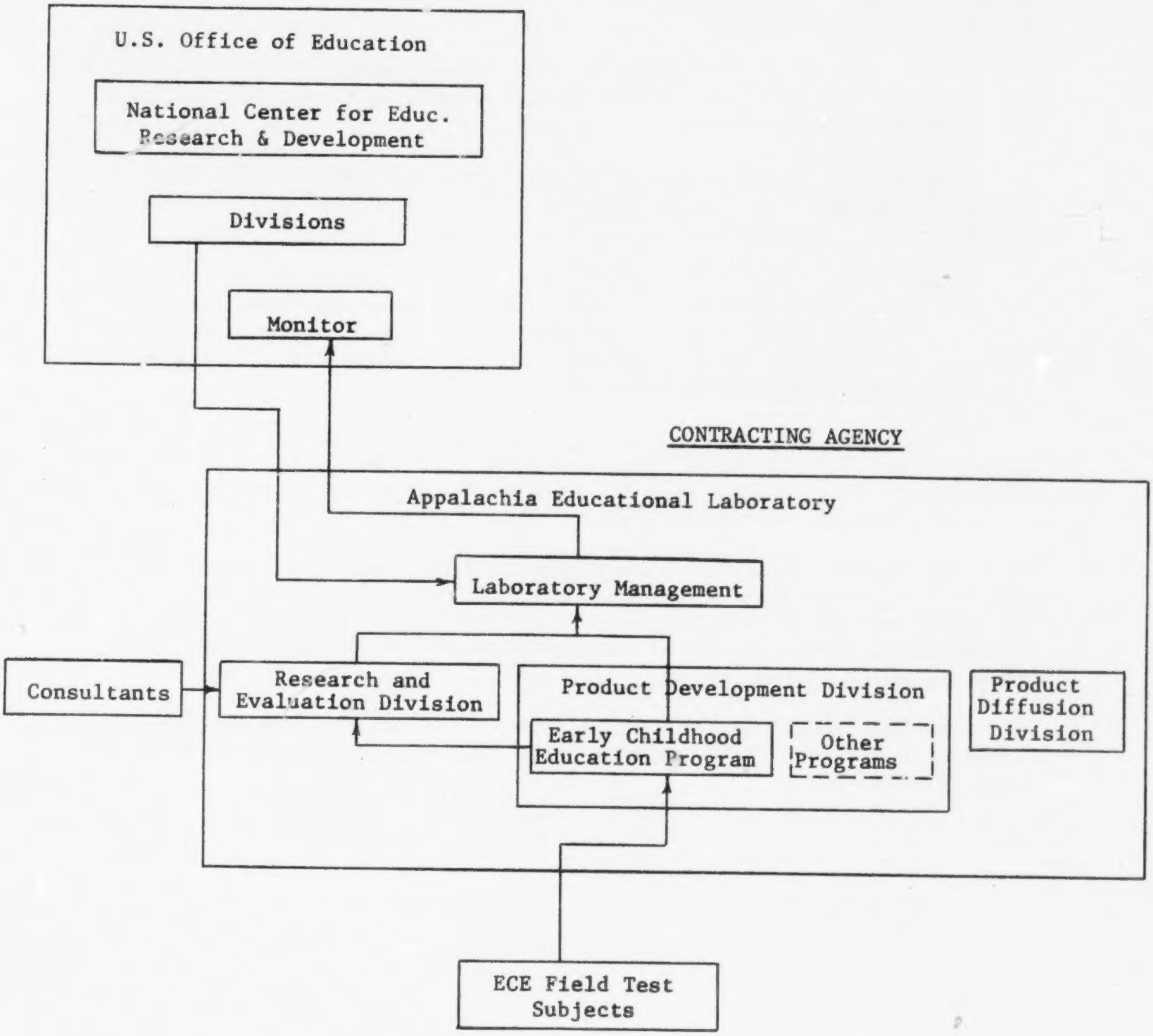
U.S. Office of Education
National Center for Educ. Research & Development
Divisions
Monitor
CONTRACTING AGENCY
Appalachia Educational Laboratory
Laboratory Management
Consultants
Research and Evaluation Division
Product Development Division
Early Childhood Education Program
Other Programs
Product Diffusion Division
ECE Field Test Subjects

FIG. 1. Contextual map.

For this project, 100% of the funds are provided through the U.S. Office of Education (USOE). Within this relationship exists the various monitoring and reporting requirements that the project must meet as a project of the Laboratory.

Consultants play a significant role in the project. They are used to critique the products of the project as well as to provide advice on techniques and procedures.

The sources of data for the evaluation of ECE are the participating field test subjects. The coordination and management of data collection is done through the Beckley, West Virginia, field office of AEL.

Time lines. Due to the nature of the tasks within the ECE Program, it was not possible for evaluators to schedule discrete times at which said evaluations would occur. Instead, scheduling of evaluation efforts was apparently done against specific tasks within the overall three and one-half year field test duration of the ECE Program.

Physical/environmental setting. The offices of AEL occupy the second floor of a downtown business building in Charleston, West Virginia. The offices were bright, cheerful, and seemed adequate in space. An extensive library was maintained at the Laboratory.

The central location of the Laboratory provides rapid access to the surrounding Appalachian communities. Educational facilities such as Morris Harvey College and West Virginia State College are located in the local community, while West Virginia University is located about 90 miles north of Charleston.

The Laboratory also maintains a field test site office for the ECE Program in Beckley, West Virginia, which is approximately 60 miles south from Charleston.

Chapter II: Parameters of the Project

This chapter presents the staffing pattern of the project and a roster of staff. It also describes briefly the outputs being generated, and displays the interdependent relationships of the outputs in an output map.

Project Structure

Staff structure. The organization of project personnel for the ECE Program evaluation is illustrated in Figure 2. Two professional staff from the Research and Evaluation Division provide technical expertise in support of the Director of the Research and Evaluation Division, who is conducting the evaluation study. In addition, the Director of the ECE Program and a member of his program staff, who is responsible within the program for formative evaluation, provide support and assistance in the conduct of the evaluation. Consultants also provide an important source of review and advice relative to products, methods, and procedures of the evaluation effort.

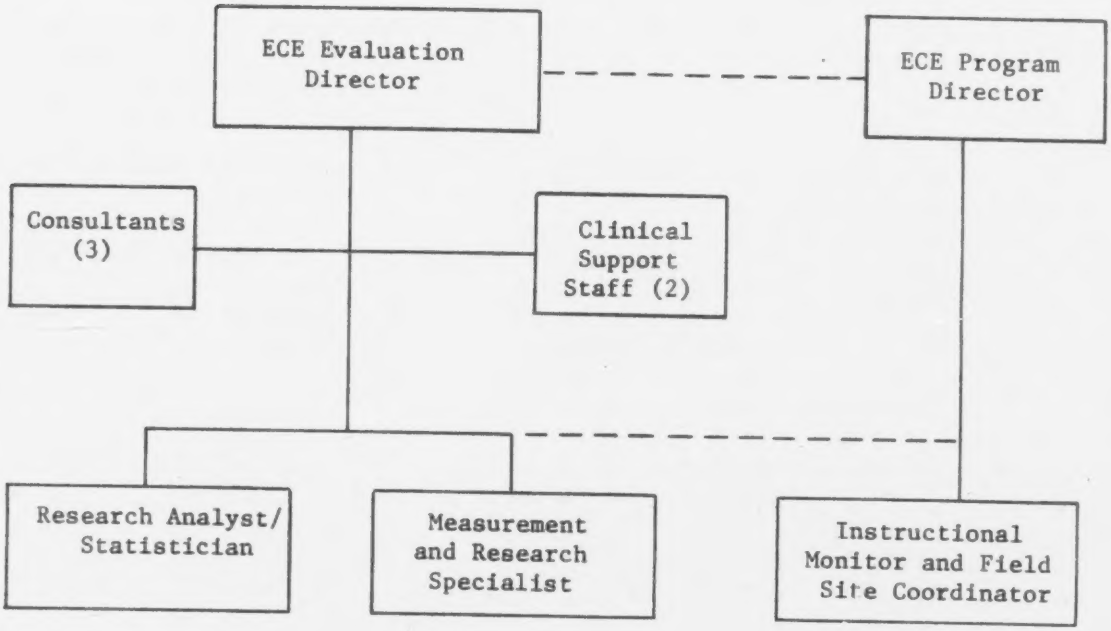
ECE Evaluation Director
ECE Program Director
Consultants (3)
Clinical Support Staff (2)
Research Analyst/ Statistician
Measurement and Research Specialist
Instructional Monitor and Field Site Coordinator

FIG. 2. Project organizational structure

Project roster. The following staff members were interviewed for information about the project and selected outputs:

Titles[1] and primary responsibilities of project personnel	Outputs around which staff member was interviewed
Director, Research and Evaluation Division (ECE Evaluation Director): Responsible for the supervision and conduct of the project in total. (.35 FTE)[2]	P-03.[3] ECE Evaluation Budget P-01. "Evaluation Report: Early Childhood Education Program 1969-1970 Field Test" P-02. "AEL Model for Evaluation" (An inhouse memo-paper)
Research and Evaluation Specialist (Research Analyst/Statistician): Responsible for evaluation design, social skills measurement and instrument design, statistical analysis/interpretation and report preparation. (.70 FTE)	P-24. Research/Evaluation Design: Social Skills in Children
Measurement and Evaluation Specialist (Measurement & Research Specialist): Responsible for the measurement of cognitive skills (including the measurement design) as well as data interpretation and report preparation. (.85 FTE)	P-04. Technical Reports (in 1969-1970 Field Test Evaluation Report) P-13. Home Visitor Observational System C-22. Coordination of Field Test Data Collection P-06. Summative Evaluation Data P-08. Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"
Educational Development Specialist (Instructional Monitor--ECE evaluation field site coordinator): Responsible for formative evaluation within program but contributes to the ECE summative evaluation by coordination of data collection, assisting in planning of data collection strategies and execution of those strategies in the field, instrument design, and data analysis/interpretation and report preparation (.35 FTE)	P-04. Technical Reports (in 1969-1970 Field Test Evaluation Report) P-13. Home Visitor Observational System C-22. Coordination of Field Test Data Collection

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[1] Laboratory position titles, with a job title descriptive of the individual's work role in the ECE evaluation included in parentheses.

[2] Full Time Equivalency.

[3] An arbitrary code number (see "Index of outputs").

One additional Laboratory staff member, the Director of the Early Childhood Education program, was interviewed for contextual information concerning the ECE evaluation.

Outputs Generated

During the time of site visitation for this analysis, significant project outputs[4] were identified and formal interviews were conducted around selected ones. Those project personnel who were linked to selected outputs were interviewed about their roles in generating the output. These outputs are annotated and summarized in the following section.

Index of outputs. Nine outputs of 48 identified (see Appendix B) were interviewed around. An arbitrary identification number has been given to each and is composed of two parts: (a) a letter which permits identification of the output as either a product (P), event (E), or condition (C),[5] and (b) a sequence number for all outputs irrespective of P, C, or E. These selected outputs were as follows:

P-01	"Evaluation Report: Early Childhood Education Program 1969-1970 Field Test." The report of evaluation results based on data obtained during the second year of a three year field test cycle.
P-02	"AEL Model for Evaluation" (An inhouse memo-paper). A document explicating a potential generic model of evaluation as integrated with the AEL Model for Educational Development (See Appendix A).
P-03	ECE Evaluation Budget. A plan providing an estimated expenditure of funds to accomplish various evaluation tasks.
P-04	Technical Reports (in 1969-1970 Field Test Evaluation Report). Eleven papers, highly technical and united in scope, that supplement the overall evaluation report.

---

[4] An "output" is defined as an identifiable and significant planned outcome (product, event, condition) of targeted work activities, with targeted work activities being actions directed toward the realization of projected goal states.

[5] Product - A tangible or "hard" outcome of work effort that survives in a form that is transportable, such as a report.
Event - An outcome of work effort that results in the occurrence of an observable transaction, such as an interview.
Condition - An outcome of work effort that results in the creation of a desired circumstance, such as fiscal responsibility.

P-06	Summative Evaluation Data. This includes all the data generated with the various instrumentation of the project to support the evaluation effort.
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills." A Curriculum specific measure of cognitive skills developed for the ECE evaluation.
P-13	Home Visitor Observational System. An interaction analysis system for systematic observation and data generation in the Home Visitor component of the ECE program.
C-22	Coordination of Field Test Data Collection. The supervision of people in acquisition, training, assignments, monitoring of budget (expenditures) and work progress to assure data production.
P-24	Research/Evaluation Design: Social Skills of Children. A plan including testing procedures, statistical measures, and control parameters.

Output map. Figure 3 represents the dependency relationships of all of the 48 identified outputs of this project. Appendix B contains a listing of these outputs, including the nine described above which were interviewed around.

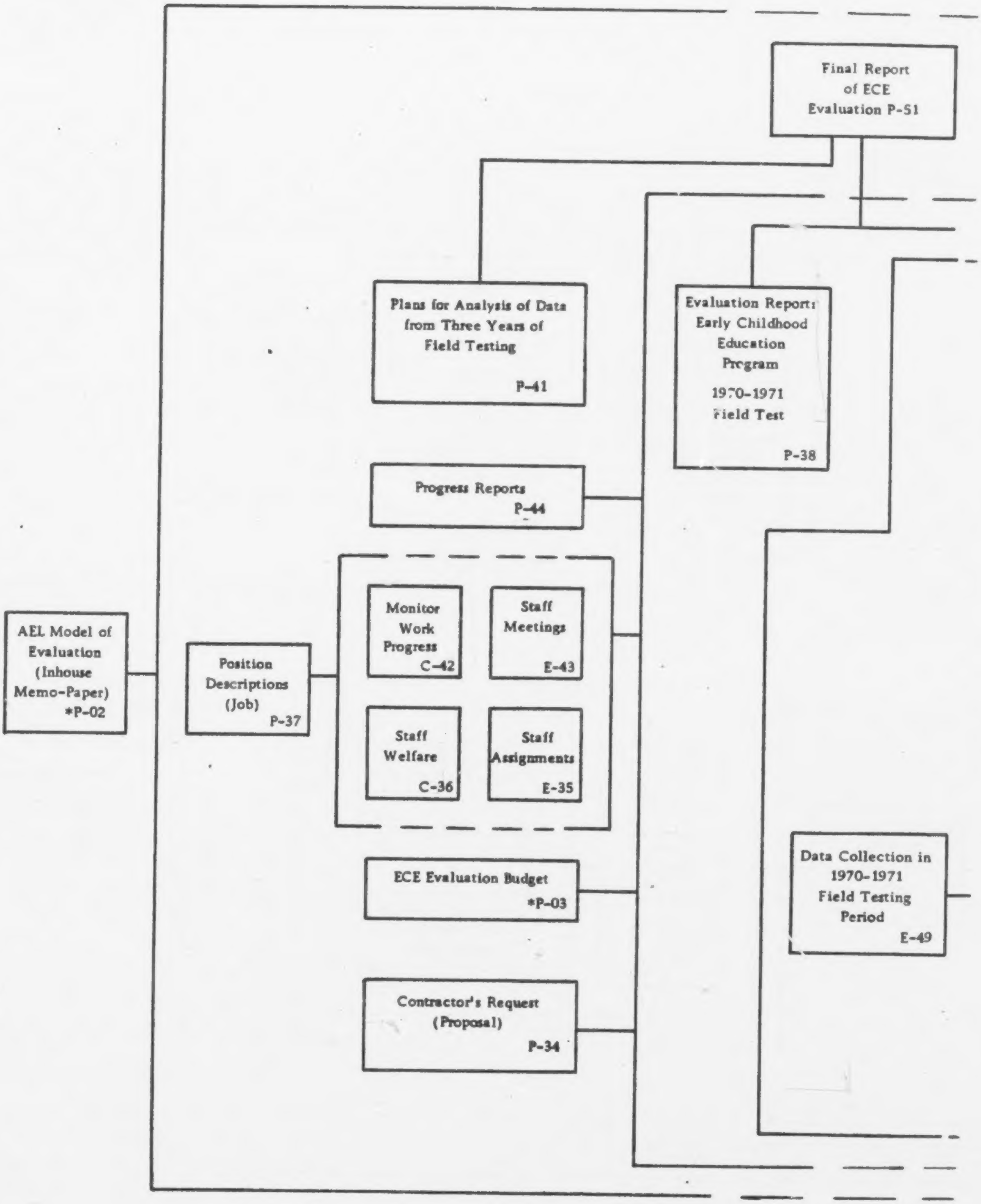
Final Report of ECE Evaluation P-51
Plans for Analysis of Data from Three Years of Field Testing P-41
Evaluation Report: Early Childhood Education Program 1970-1971 Field Test P-38
Progress Reports P-44
Monitor Work Progress C-42
Staff Meetings E-43
Staff Welfare C-36
Staff Assignments E-35
AEL Model of Evaluation (Inhouse Memo-Paper) *P-02
Position Descriptions (Job) P-37
ECE Evaluation Budget *P-03
Contractor's Request (Proposal) P-34
Data Collection in 1970-1971 Field Testing Period E-49

FIG. 3. Output map.

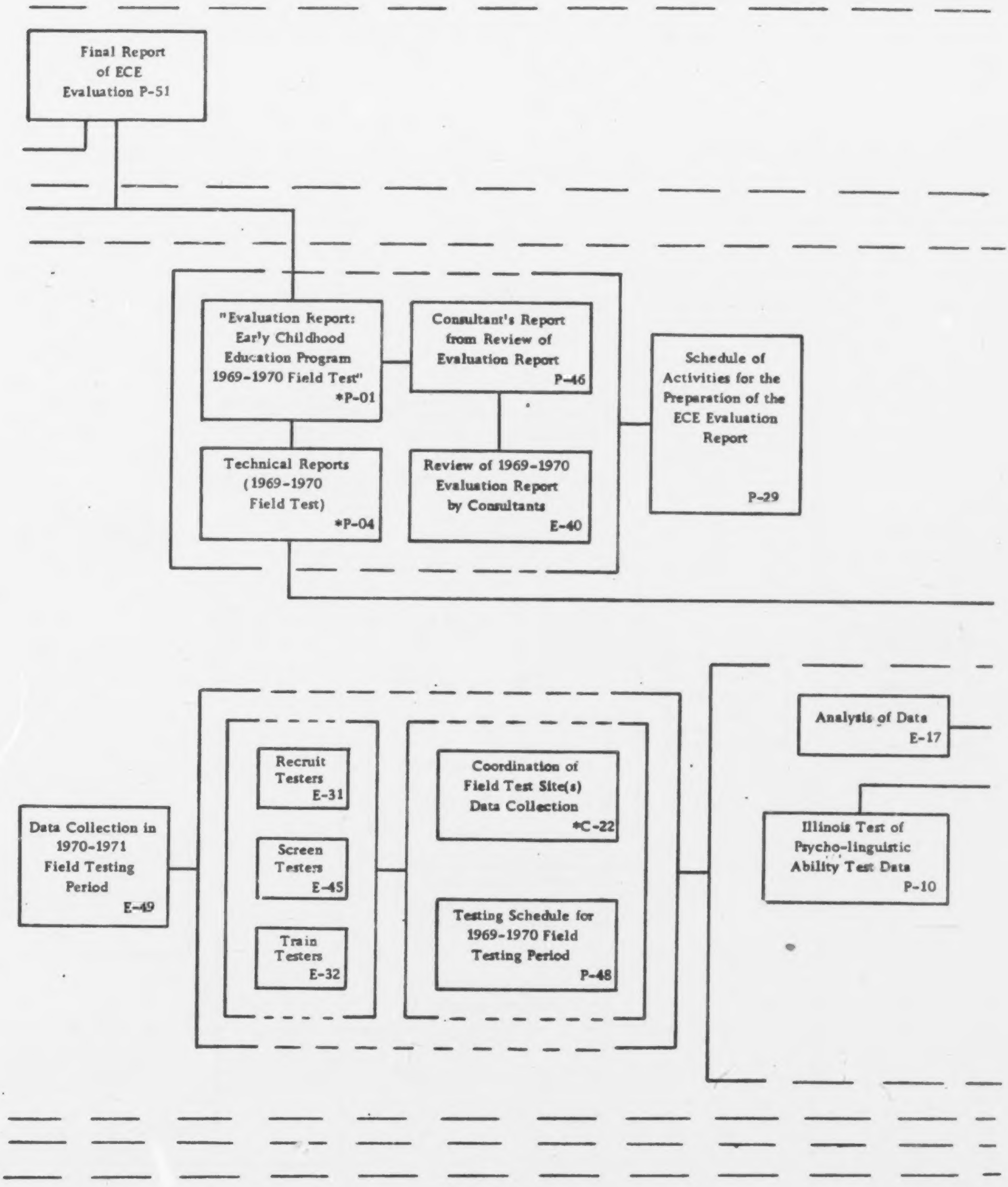
Final Report of ECE Evaluation P-51
"Evaluation Report: Early Childhood Education Program 1969-1970 Field Test" *P-01
Consultant's Report from Review of Evaluation Report P-46
Schedule of Activities for the Preparation of the ECE Evaluation Report P-29
Technical Reports (1969-1970 Field Test) *P-04
Review of 1969-1970 Evaluation Report by Consultants E-40
Analysis of Data E-17
Recruit Testers E-31
Coordination of Field Test Site(s) Data Collection *C-22
Data Collection in 1970-1971 Field Testing Period E-49
Screen Testers E-45
Illinois Test of Psycho-linguistic Ability Test Data P-10
Testing Schedule for 1969-1970 Field Testing Period P-48
Train Testers E-32

FIG. 3. Output map (continued).

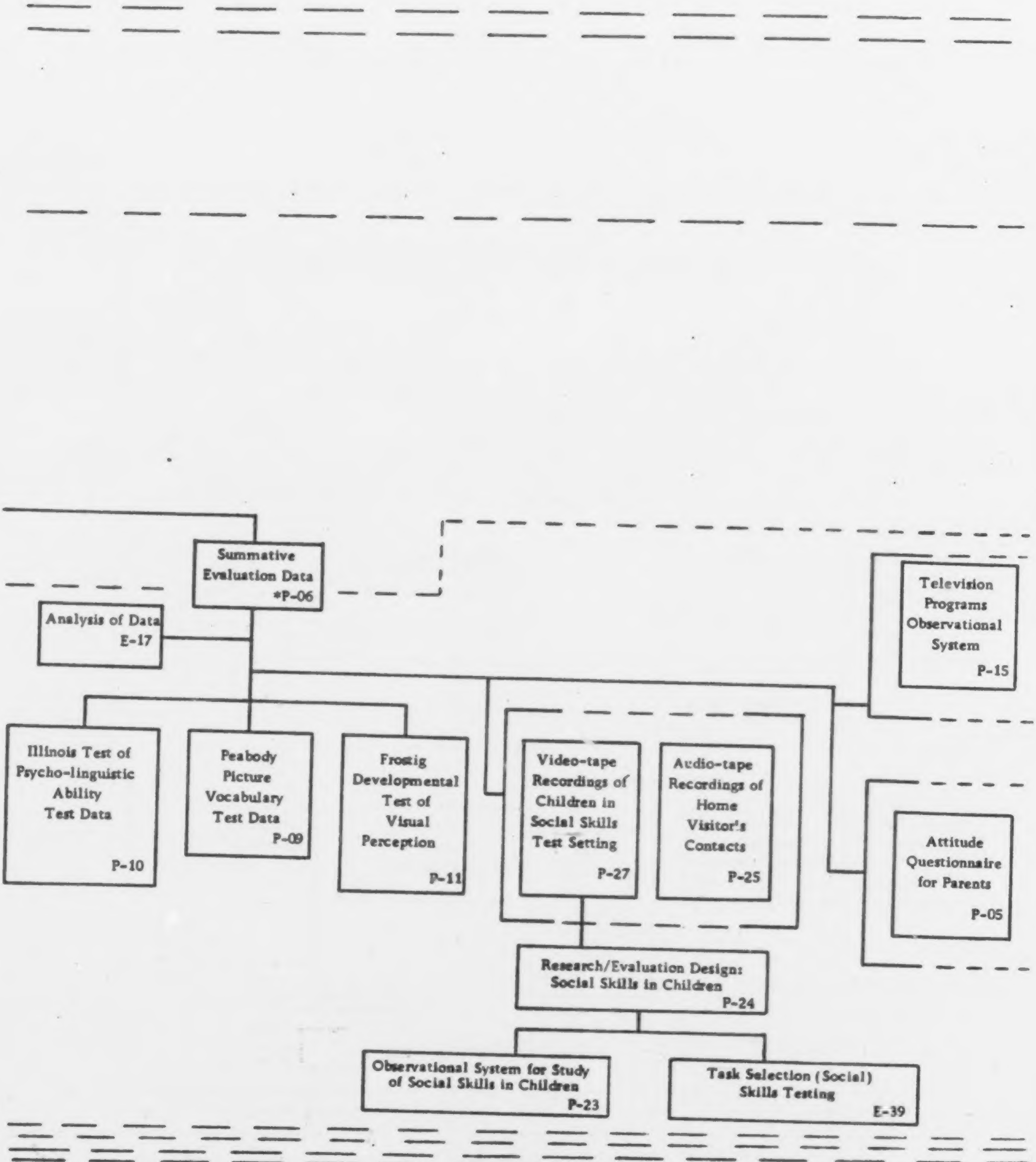
Summative Evaluation Data *P-06
Analysis of Data E-17
Illinois Test of Psycho-linguistic Ability Test Data P-10
Peabody Picture Vocabulary Test Data P-09
Frostig Developmental Test of Visual Perception P-11
Video-tape Recordings of Children in Social Skills Test Setting P-27
Audio-tape Recordings of Home Visitor's Contacts P-25
Television Programs Observational System P-15
Attitude Questionnaire for Parents P-05
Research/Evaluation Design: Social Skills in Children P-24
Observational System for Study of Social Skills in Children P-23
Task Selection (Social) Skills Testing E-39

FIG. 3. Output map (continued).

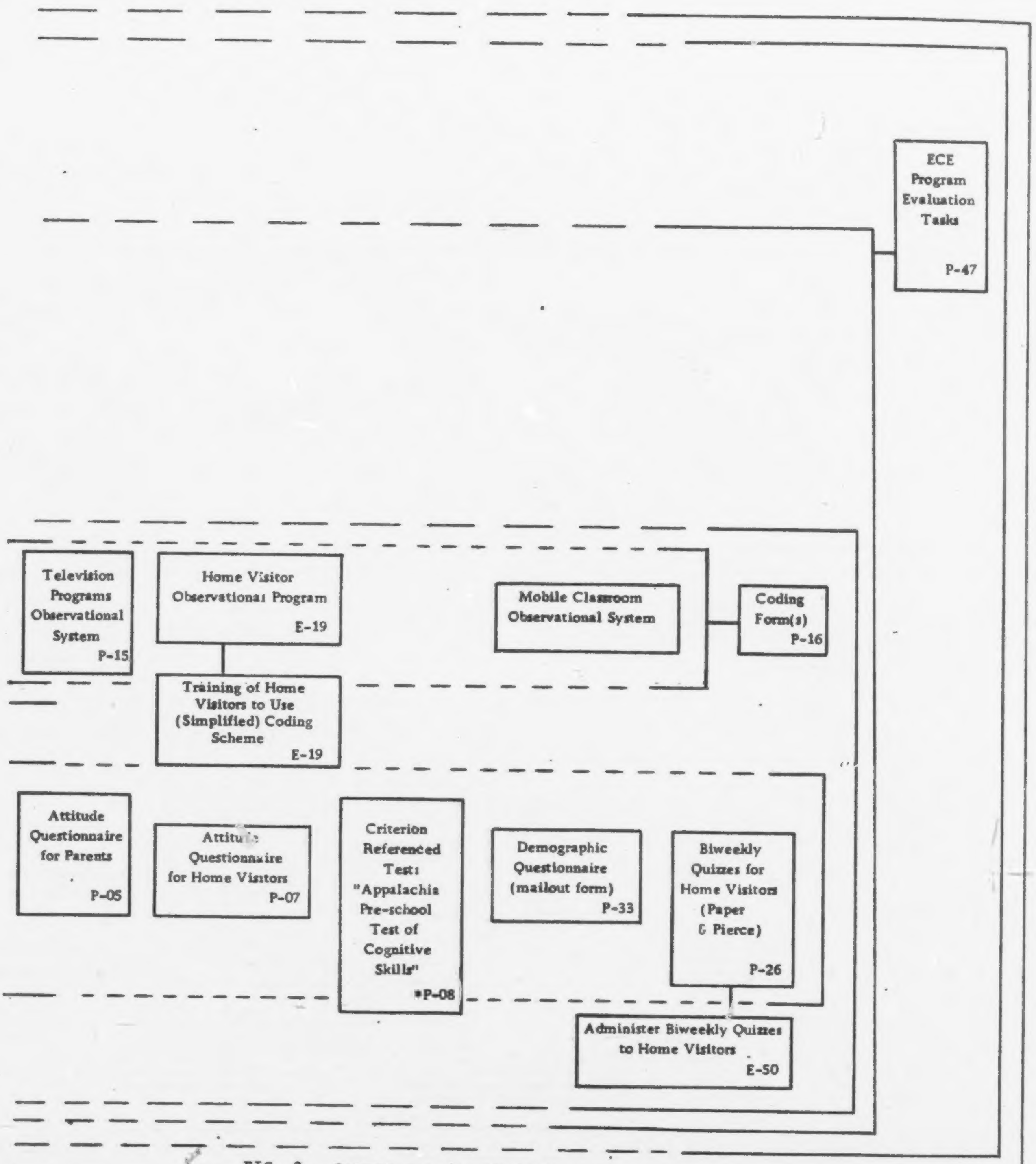
ECE Program Evaluation Tasks
P-47
Television Programs Observational System
P-15
Home Visitor Observational Program
E-19
Mobile Classroom Observational System
Coding Form(s)
P-16
Training of Home Visitors to Use (Simplified) Coding Scheme
E-19
Attitude Questionnaire for Parents
P-05
Attitude Questionnaire for Home Visitors
P-07
Criterion Referenced Test: "Appalachia Pre-school Test of Cognitive Skills"
*P-08
Demographic Questionnaire (mailout form)
P-33
Biweekly Quizzes for Home Visitors (Paper & Pierce)
P-26
Administer Biweekly Quizzes to Home Visitors
E-50

FIG. 3. Output map (concluded).

Chapter III: Summary of the Data

Data were gathered around the selected outputs by means of interviews with knowledgeable staff. The interviews sought to elicit for each output the standards by which one judges the satisfactory completion of the output, the tasks required to generate an output meeting those standards, and the enablers (knowledges, skills, sensitivities) which facilitate the carrying out of those tasks. Interviewee statements were categorized subsequently into somewhat more general statements, for purpose of providing more standardization of reported information. Tables 1-6 summarize the data in these categories by showing how frequently an item of interview information was cited within one of these categories.

Within each category are a series of descriptive labels which are representative of interviewee statements. These descriptive labels are listed in the tables under the category heading. In the process of reducing raw (interview) data, narrative interviewee statements about an output were linked to one of the category sets. Each narrative statement was then classified by means of a number code according to the most representative descriptive label within a given category or subcategory.

Each table, therefore, provides the frequency with which interviewees cited specific statements (which are represented by the descriptive labels inthe tables) of standards, tasks, and enablers in relation to each output.[6]

Output Analysis

Standards held for outputs. Tables 1 and 2 summarize the output standards that the interviewees cited. Specifically, Table 1 includes 33 standards for outputs (coding set J-1) and Table 2 contains 13 management-oriented standards for processes and operations (coding set J-2). As shown in Table 1, 16 categories of standards account for a total of 33 reported output standards. Outputs 01, 04, and 24 (evaluation report, technical report(s), research design) most frequently elicited statements of output standards, each output containing standards in five categories. Standard 09, "lack of errors/discrepancies," however, is the only category of standard cited in each of these three outputs. Standards 11 and 13 ("appropriate design/content" and "acceptance by others") were the most cited categories (cited in Outputs 01, 02, 04, 13, and 24). However, for Output C-22, no output standards were noted during the interviews. The generally scattered distribution of the frequencies limit positive interpretation.

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[6] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in Appendix B. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to Appendix B and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is only represented in the tables by its descriptive category label and code number.

Table 2 shows the distribution of 13 process standards that were cited around five of the nine outputs. Output 22, "coordination of field test data collection," was the subject of four of the standards categories. The categories, "deadlines are met" (04), "work conducted w/in budget" (13), "closure reached on questions" (28), "resources available on request" (32) give some insight into the management objectives involved in this output and the indicators used for judging their accomplishment. Only Standards 04 and 28 were cited for more than one output.

Tasks pertaining to output attainment. Table 3 summarizes the tasks cited by interviewees as contributing to the accomplishment of interviewed outputs. Fifteen task clusters accounted for a total of 127 tasks cited across the nine outputs. The most frequently used task clusters are "producing the output," "collecting/processing data," and "processing professional staff." These higher-use clusters are associated primarily with such outputs as "technical reports: 69-70 field test", "summative evaluation data." The output most frequently eliciting task statements was "summative evaluation data." Much of the work of the project, however, centers around the production or writing of various reports, as can be noted by the relatively high citation of tasks for Outputs 01, 02, and 04.

Enablers pertaining to output attainment. Table 4 summarizes the knowledges cited by interviewees that enable them to do their jobs. Knowledges in category 03, "subjects related to RDD&E," are cited far more frequently than those in any other category, and occur in five outputs. It may be noted that knowledges 08, 18, and 21, were involved only once each. It is important, therefore, for the reader to keep in mind that the infrequency of occurrence in a category does not necessarily mean that such tasks were not being used or considered in the project; it simply means that they were not cited by the staff during interviews.

In Table 5, for the nine outputs interviewed, a total of 51 enabling skills were cited in 24 skill categories. Though skills in "mediation of people interactions" (02), "writing" (14), and "analytical skills in data handling" (10) were cited relatively more frequently than others, the scattered distributions preclude much meaningful interpretation. Such skills, however, are important in accomplishing the various tasks of data collection, data analysis, and report preparation. These are activities that occupy much of the time of the staff on this project.

Table 6 summarizes the sensitivites the interviewees cited as enabling them to conduct their project activities effectively. Over the eight outputs eliciting such enablers, a total of 29 sensitivities are cited in 20 categories. Though Output 06, "summative evaluation data," obtained most frequent citation of sensitivities, seeming to belie the highly research/data-oriented nature of this project, the distributions are again too meager and scattered to show obvious groupings of outputs and enablers.

TABLE 1

Output Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Outputs (Category code no. and label for coding set J-1)																
No.	Label	01 Completeness of content	04 Communication and clarity	05 Utility or value	07 Personal satisfaction/feeling	08 Agreement/concurrence w/others	09 Lack of errors/discrepancies	11 Appropriate design/content	12 Goal attainment	13 Acceptancy by others (in proj)	16 Compares favorably	19 Logical criteria	21 Sources of variance controlled	22 Functions as planned	23 Successfully constrains/guides	24 Terminology appropriate	29 Meets design expectations	Output Totals
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test		1			1	1			3							1	7
P-02	Evaluation Model: Inhouse Memo									1					1			2
P-03	Evaluation Budget: Early Childhood Education Program							1	1									2
P-04	Technical Reports: 1969-70 Field Test Evaluation Report		1			1	1		2							2		7
P-06	Summative Evaluation Data				1								2					3
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"	1				1						1						3
P-13	Home Visitor Observational System			1				1						1				3
P-24	Research Evaluation Design: Social Skills of Children						1	2		1	1		1					6
Category Totals		1	2	1	1	3	3	4	3	5	1	1	3	1	1	2	1	33

TABLE 2

Process Standards Cited for Each Output Analyzed

Project Outputs No.	Label	Primary Categories of Standards for Processes (Category code no. and label for coding set J-2)									Output Totals
		04 Deadlines are met	05 Acceptable level of output	07 An expected activity occurs	13 Work conducted w/in budget	28 Closure reached on questions	32 Resources available on request	34 Impact of effort favorable	35 Outputs distributed/ requested	40 Outputs published externally	
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test	2							1		3
P-02	Evaluation Model: Inhouse Memo					1		1			2
P-04	Technical Reports: 1969-70 Field Test Evaluation Report									1	1
P-06	Summative Evaluation Data		1	2							3
C-22	Coordination of Field Test Data Collection	1			1	1	1				4
Category Totals		3	1	2	1	2	1	1	1	1	13

TABLE 3

Tasks Cited for Each Output Analyzed

Project Outputs No.	Label	01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	21 Procuring professional staff	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	25 Maintaining job satisfaction	29 Facilitating relationships	30 Effecting info flow patterns	31 Diffusing info within project	32 Diffusing info beyond project	Output Totals
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test	1		1	2		2	1	4		2	1	2		1	2	19
P-02	Evaluation Model: Inhouse Memo	2	2		1		2		1		1				3		12
P-03	Evaluation Budget: Early Childhood Education Program		3	1			1	2	3						1		11
P-04	Technical Reports: 1969-70 Field Test Evaluation Report	1	1		7	5	2				1						17
P-06	Summative Evaluation Data			4	3	7		8		2	2		1		2		29
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"	2	2	1	5						1				1		11
P-13	Home Visitor Observational System	1			4						1						6
C-22	Coordination of Field Test Data Collection							2	2		1		2	2		1	10
P-24	Research Evaluation Design: Social Skills of Children	1		3		3	1				1		2		1		12
Cluster Totals		8	8	10	22	15	8	13	10		9	1	7	2	9	3	127

Clusters of Tasks (Cluster code no. and label for coding set NO)

TABLE 4

Enabling Knowledges Cited for Each Output Analyzed

19.

Project Outputs No.	Label	01 Standard school subjects	02 Subjects learned in courses	03 Subjects related to RDD&E	04 Technical/professional subjects	08 Project operation; specific	11 Fiscal matters	18 Staff competencies/interests	21 Management techniques	23 Char's of target audience	Output Totals
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test		1	5						1	7
P-02	Evaluation Model: Inhouse Memo			3				1			4
P-03	Evaluation Budget: Early Childhood Education Program						2		1		3
P-04	Technical Reports: 1969-70 Field Test Evaluation Report	2		1	1						4
P-06	Summative Evaluation Data		1		1	1				1	4
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"		1		1					1	3
P-13	Home Visitor Observational System			1							1
P-24	Research Evaluation Design: Social Skills of Children		1	2	2						5
Category Totals		2	4	12	5	1	2	1	1	3	31

The table's column header above the codes reads: Primary Categories of Enabling Knowledges (Category code no. and label for coding set S-1)

TABLE 5

Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (category code no. and label for coding set S-2)																								
No.	Label	02 Facilitating people interaction	04 Using/applying feedback	05 Programming project events	09 Analytical problem solving	10 Analytical data handling	11 Disciplining self	14 Writing	18 Finding fits/integrating	19 Planning/conceptualizing	20 Exercising judgment	21 Tracking activities/goals	22 Estimating expenses/resources	23 Persuading/justifying	25 Applying measurement tools	27 Using equipment/systems	29 Getting others to conform	31 Taking another's perspective	34 Coordinating activities	35 Communicating clearly	37 Assessing skills/potential	38 Using resources effectively	39 Constructing measurement tools	43 Instilling confidence	45 Assessing personal performance	Output Totals
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test	2				1		1	1		1						1		1							8
P-02	Evaluation Model: Inhouse Memo	1						1	2	1																5
P-03	Evaluation Budget: Early Childhood Education Program											1	1	1												3
P-04	Technical Reports: 1969-70 Field Test Evaluation Report			2	1	3		1								2		1		2					1	13
P-06	Summative Evaluation Data		1				2		1						2		1				1			1		9
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"	1						1												1		1	1			5
P-13	Home Visitor Observational System									1					1											2
C-22	Coordination of Field Test Data Collection	1												1			1									3
P-24	Research Evaluation Design: Social Skills of Children					1		1		1																3
	Category Totals	5	1	2	1	5	2	5	4	3	1	1	1	2	3	2	3	1	1	3	1	1	1	1	1	51

TABLE 6

Enabling Sensitivities for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Sensitivities (category code no. and label for coding set S-3)																				
No.	Label	01 Value of self and others	02 Capabilities and limitations	03 Needs of self and others	04 Context of subject matter	06 Worth in discipline/methods	15 Degrees of freedom to deviate	16 Existing value systems	21 Limitations of analyses/ data	25 Individual differences	30 Response sets of tgt audiences	31 Nature/scope of output	34 Willingness to take guidance	35 Need to communicate effectively	37 Willingness to delegate	38 Emerging directions	40 Contractual/stated obligations	41 Inquisitiveness	42 Enthusiasm	44 Interested in activities	47 Willingness to work as needed	Output Totals
P-01	Evaluation Report: Early Childhood Education Program 1969-70 Field Test		1	1						1	1					1						5
P-02	Evaluation Model: Inhouse Memo	1						3			1	1										6
P-04	Technical Reports: 1969-70 Field Test Evaluation Report																1	1	1			3
P-06	Summative Evaluation Data		1		1		1							1	1		1				2	8
P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"			1		1							1								1	4
P-13	Home Visitor Observational System																			1		1
C-22	Coordination of Field Test Data Collection		1																			1
P-24	Research Evaluation Design: Social Skills of Children								1													1
	Category Totals	1	3	2	1	1	1	3	1	1	2	1	1	1	1	1	2	1	1	1	3	29

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Chapter IV: Supplementary Data

This chapter contains information about output characteristics, the backgrounds of the staff, and the training and resources needed for carrying out the job activities within the project.

Classifications of Output Characteristics

Outputs may be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition); (b) Function (policy setting, management, or production); (c) Character (knowledge, technology, implementation, or information); (d) Level (focal, component, or facilitating), and (e) Stage of completion. These five schema are represented in Table 7 for each project output identified, with frequencies summarized for each category.

Summary of Staff Backgrounds

The information in this section is based on questionnaire responses of the four staff members of the ECE Evaluation Project.

Major area of specialty. Of the four staff interviewed, the three who held doctorate degrees identified their major area specialities as education/teaching, statistics/measurement, and educational research. The fourth held a master's degree with specialization in clinical psychology.

National professional memberships. The staff indicated memberships in the following professional organizations:

1. American Educational Research Association.
2. National Education Association.
3. American Psychological Association.
4. American Statistical Association.

Prior work experience. Table 8 displays the distribution of total work experience of the four within various work settings.

TABLE 7

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
No.	Label	Structure			Function			Level			Character (Products only)				Completion Stage					
		p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
*P-01	"Evaluation Report: Early Childhood Education Program 1969-1970 Field Test"	x					x	x						x				x		
*P-02	"AEL Model for Evaluation" (inhouse memo-paper)	x			x					x		x				x				
*P-03	ECE Evaluation Budget	x				x				x				x		x				
*P-04	Technical Report(s) (in 1969-1970 Field Test Evaluation Report)	x					x		x					x				x		
P-05	Attitude Questionnaire for Parents	x					x			x		x				x				
*P-06	Summative Evaluation Data	x					x		x					x			x			
P-07	Attitude Questionnaire for Home Visitors	x					x			x		x				x				
*P-08	Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"	x					x			x		x				x				
P-09	Peabody Picture Vocabulary Test Data	x					x			x				x		x				
P-10	Illinois Test of Psycholinguistic Ability Test Data	x					x			x				x		x				
P-11	Frostig Developmental Test of Visual Perception Data	x					x			x				x		x				
*P-13	Home Visitor Observational System	x					x			x		x				x				
P-14	Mobile Classroom Observational System	x					x			x		x				x				
P-15	Television Programs Observational System	x					x			x		x				x				
P-16	Coding Form(s)	x				x				x		x				x				
E-17	Analysis of Data		x				x			x							x			
P-18	Formative Evaluation Feedback Reports (to curriculum materials team)	x					x			x				x						x
E-19	Training of Home Visitors to Use (simplified) Coding Scheme		x			x				x						x				
E-20	Formative Evaluation Feedback Reports (to Home Visitors-usually verbal)	x					x			x										x
E-21	Formative Evaluation Feedback Reports (to Mobile Classroom teacher-usually verbal)	x					x			x										x
*C-22	Coordination of Field Test Data Collection			x		x				x										x
P-23	Observational System for Study of Social Skills in Children	x					x			x		x				x				
*P-24	Research/Evaluation Design: Social Skills of Children	x				x				x		x				x				
P-25	Tape Recordings of Home Visitor Contacts	x					x			x				x						x
P-26	Bi-weekly Quizzes for Home Visitors (Paper and Pencil)	x					x			x		x								x
P-27	Video-tape Recordings of Children in Social Skills Test Setting	x			24		x			x				x		x				

TABLE 7 concluded

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																	
		Structure			Function			Level			Character (Products only)				Completion Stage				
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-29	Schedule of Activities for Preparation of 1969-70 ECE Field Test Evaluation Report	x				x				x		x				x				
E-31	Recruiting of Testers		x			x				x						x				
E-32	Training of Testers		x			x				x						x				
P-33	Demographic Questionnaire (mail-out form)	x					x			x		x			x					
P-34	Contractor's Request (Proposal)	x				x				x		x			x					
E-35	Staff Assignments		x			x				x						x				
C-36	Staff Welfare			x		x				x										x
P-37	Position Descriptions (Job)	x				x				x		x				x				
P-38	Evaluation Report: ECE Program 1970-1971 Field Test	x					x	x						x					x	
E-39	Task Selection (Social Skills Testing)		x				x			x								x		
E-40	Review of 1969-1970 Evaluation Report of Consultants		x			x				x								x		
P-41	Plans for Analysis of Data from Three Years of Field Testing	x				x				x		x							x	
C-42	Monitored Work Progress			x		x				x										x
E-43	Staff Meetings		x			x				x										x
P-44	Progress Report(s)	x				x		x						x						x
E-45	Screening of Testers		x			x				x						x				
P-46	Consultants Report from Review of 1969-1970 ECE Evaluation Report	x				x				x				x				x		
P-47	ECE Program Evaluation Tasks Outline	x				x				x		x			x					
P-48	Testing Schedule for 1969-1970 Field Testing Period	x				x				x		x				x				
E-49	Data Collection in 1969-1970 Field Testing Period		x				x			x						x				
E-50	Administering of Bi-weekly Quizzes to Home Visitors		x				x			x										x
P-51	Final Report of ECE Evaluation	x					x	x						x					x	
Classification Frequencies[b]		34	11	3	1	21	26	4	2	42	0	18	0	14	3	24	2	5	3	11

[a] The specific output characteristics are identified as follows:

Structure

p - product
e - event
c - condition

Function

ps - policy setting
m - management
p - production

Level

f_1 - focal
c - component
f_2 - facilitating

Character

k - knowledge
t - technology
i_1 - implementation
i_2 - information

Completion Stage

1 - completed over one year ago
2 - completed 3 to 12 months ago
3 - completed within last 3 mos.
4 - currently in progress
5 - not yet underway
6 - on going (continuous)

[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

TABLE 8

Distribution of Staff Work Experience Within Work Setting Categories

Work Setting	Amount of Experience: No experience	Less than one year	One to four years	Five or more years
In College Teaching or Research	1	1	2	0
In Public Schools	2	0	1	1
In State or National Education Agencies	3	0	0	1
In Educational R&D Centers	0	0	3	1
In Present Organization (may be concurrent with other settings above)	0	1	3	0
In Other Educational or Research Work Settings	2	0	0	2

Summary of Interviewee Responses

Present position requirements. Four questions asked of the four interviewees are stated below with their responses.

Question 1: What specific knowledges and skills does your position require?

1. Knowledge of research and evaluation techniques and when to apply them.

2. Knowledge of alternative research/experimental designs, sampling procedures, and statistical analysis techniques.

3. Skill in choosing a research design to suit the objectives of the study, within certain given operational restrictions.

4. Testing and psychometric theory.

5. Human behavior and development and interaction analysis.

6. Ability to feed data back in a helpful, nonthreatening manner.

Question 2: How many years of work experience does (your) position require in educational research, development, diffusion, and/or evaluation?

Over three positions, one year was the minimum recommendation in RDD&E experience, while four years was recommended for the Director's position.

Question 3: How many years of work experience does (your) position require in administration or management activities?

Over the four positions the recommendations ranged from no previous administrative or management experience to two years' experience for the Director's position.

Question 4: What level of academic training does (your position) require?

Over the four positions, three respondents indicated the highest degree they held as also being required for their positions. However, the fourth respondent, who holds a doctorate, recommended the master's degree as the required degree level for his position. The reason for this recommendation was that expert consultants are readily available to the staff and that a person with a master's degree and research experience could be expected to handle the position.

Support resources. The service and equipment used by the personnel on this project were:

1. Support services, provided by other persons or agencies, that are needed to carry out the work of the staff on this project:

Printing.
Other reproduction services: copying, video-tape.
Art work and illustrations.
Technical writing.
Editing.
Secretarial services, other than typing (coding)
Typing.
Purchase of supplies and equipment.
Library holdings.
Subscriptions to technical and professional journals/periodicals.

Requests for documents or publications not really available.
Computer analysis services (data processing).
Computer program writing.
Statistical consultation.
Audio-visual aids and devices.
Subjects for experimentation or tryout of procedures.
Travel arrangements.
Budgetary and other fiscal accounting.
Scoring of test items.
Television facilities and equipment.

2. Support equipment that is immediately available and used by project personnel:

Dictating equipment.
Desk calculators.
Desk-top computer.
Video tape.
Television camera.
Readers for microfiche or microfilm.
Tape recorders.

General activity significance. By means of a procedurally separate questionnaire, project personnel were asked to rate nine general activity categories on an eight-point scale. The scale represents the significance of an activity in the respondent's project work, from 0, "Definitely not a part of my project activity, does not apply," to 7, "A most significant part of my work." The rankings are listed by position over the nine categories, in Table 9.

Rating at a mean level corresponding to at least "a substantial part of my work," were seven of the nine general activities, with "designing or planning procedural activities for the project" being by far the most significant activity of project personnel.

TABLE 9

Ratings of General Activity Significance

General Activities	Position Title				
	Director of Research & Evaluation	Research & Evaluation Specialist	Measurement & Evaluation Specialist	Educational Development Specialist	Mean of Four Ratings
Reading	3	4	4	4	3.75
Designing or planning procedural activities for the project	6	7	5	7	6.25
Developing research tools or other information-gathering instruments	2	6	6	7	5.25
Collecting project data	2	3	6	6	4.25
Analyzing data	4	7	1	4	4.0
Writing	4	7	6	5	5.5
Supervising and coordinating actions of others, and/or of material resources	6	3	6	6	5.25
Teaching or training	2	0	2	3	1.75
Meeting, consulting, or advising	5	4	2	6	4.25

Chapter V: Dynamics of the Project

Appalachia Educational Laboratory consists of three divisions: the Research and Evaluation Division, the Product Development Division, and the Product Diffusion Division. The ECE Program resides in the Product Development Division, and is an effort to provide preschool education for children in outlying Appalachia areas. With this program there is a major evaluation effort which has two thrusts: that of formative evaluation, which is the responsibility of the ECE Program itself, and that of summative evaluation, which is the responsibility of the Research and Evaluation Division.

It was stressed that use of the R&E Division in a development such as the ECE Program provided not only the objectivity needed to accurately assess the program in the summative sense, but also provided a similar influence to the formative evaluation within the program.

Management Style

The Director of the AEL presents an impression of strong individual leadership that manifests itself through the AEL Development Model (Appendix A). Reflecting this model is the AEL Model for Evaluation (Output P-02). These two documents set the operational policy under which the R&E Division functions. This division plays a major role in the evaluation components of all AEL projects and programs. The Oregon Studies' investigation concentrated on the efforts of the R&E Division in relation to the evaluation of only one AEL program (Early Childhood Education).

The Director of the R&E Division manages in a participatory fshion, working along with his staff in the evaluation efforts. He does this in addition to performing supervisory duties such as establishing time lines and assigning work activities to staff members.

While the major role of the R&E Division is to act as a "third party" evaluator, the staff members lend their technical expertise to the ECE Program when it requires formative evaluations.

Physical Setting

The AEL offices are on the second floor of a downtown Charleston office building. The office layout is rectangular with the support services centrally located. These include printing facilities, library, coffee bar, secretarial office, and so forth. Individual staff offices are located on two sides of the rectangular area. Most of the offices are about 8x10 feet with usually one window. In some cases, however, the view was of a brick wall. Generally throughout the office area were fluorescent lighting; carpeted hallways; and metal office-type desks, chairs, and files. The offices were comfortably air conditioned and decorated in pastel colors.

The Laboratory support services seemed quite adequate. The printing facilities included a rotary sorter or collator which would allow considerable production. The library occupied considerable space, and it was indicated that it was maintained as current as possible to support the various activities of the Laboratory.

Other noticeable effects of the physical setting included a low noise level, allowing for almost all the office doors to be open. There were two conference rooms, and each seemed capable of seating about 20 people. Assignment to offices appeared to cluster by division or program, and the staff had fairly easy access to each other. In the reception area there was a large sign-in and sign-out board for staff. The apparent purpose of this was to log out-of-town travel and personal leave in order to know who was supposed to be in or around the Laboratory.

Communication

Communications effecting the conduct of the ECE evaluation can range from a quick chat in the hall to formal meetings and/or papers. Memos are a fairly common form of communications, especially for explaining designs and procedures. The memo also allows for some deliberation and an appropriate response, such as a critique.

With most of the data being coordinated and collected through the Beckley field office, constant communication is essential between that office and the Laboratory in Charleston. Apparently, much of the contact between them is by telephone and weekly visits.

Comments

The staff indicated that one thing the evaluation effort (and the Laboratory in general) could use was a computer terminal. All data were either sent or taken out of town by one of the R&E staff when conducting computer analyses.

There seems to be an extreme interest on the part of the staff in making the summative evaluation just as precise as they can. Every attempt is made to control the testing as much as possible to avoid contaminating the data. This conservation has led them to be somewhat overly cautious in reporting the results. In some cases, as the consultants pointed out in their review, sufficient emphasis was not given to positive evidence in the data.

Chapter VI: Implications for Training

The primary criticism leveled by the project staff toward present training of R&E personnel in education was that the training experience generally lacks reality. Their opinion was that the student too often passes through a training program that ill prepares him for the actual on-the-job tasks he will face. Current training seems to provide sufficient background in theory, but it lacks practice. In a sense, the teaching and training of theory and that which takes place in actual practice are not separable. As one of the staff commented, the student "needs a year-long course or an experience in a project that gives him hands-on experience." It was suggested that the student should be exposed to practice in all aspects of educational R&E from designing, developing instruments, collecting data, gaining entry for data collection, and data analysis and preparation of reports. Included would be concurrent course work in design theory and statistics.

How is this different from the thesis or dissertation? Possibly the difference is not so much in kind as in degree. There could be practical experience which goes beyond the specific research for the thesis or dissertation. There could be more emphasis in team work among students, as well as experience across several projects. In addition, the value of the practical experience could be increased considerably. In some cases, the practical experience might be introduced to the student before the theoretical training. It is possible that such a sequence might allow the student to enhance his learning of theory.

Beyond the general theories of research and evaluation, a training program apparently would do well to emphasize the differences between research and evaluation. There are evaluation problems with which one schooled primarily in research theory is not generally prepared to cope. The evaluator's objective can differ greatly as well as his methods. The burden of proof of a theoretical position is usually not upon the evaluator, rather his job is to provide evidence of the effectiveness of a program or development. Also, the evaluator is not able to apply direct controls in his study, thus he must resort to other techniques.

Another reality of the working world of educational R&E is that much of the work is carried out by teams of people. Consequently, the ability to work effectively with others and to contribute as a team member is very important. Again, it would seem that practical, team experience for the student in several actual projects would be essential to training people who could work effectively in a team situation. Too often the thesis or dissertation work seems to be a fairly solitary effort, at least from peer involvement.

Writing skill plays an essential role in the conduct of this project. The staff emphasized that skills in writing were equal with skills in developing research/evaluation designs and data analyses (statistics). Writing seems to be a foundational skill upon which many of the activities of design and planning depend. Of course, the products of the evaluator are his reports, and effective reports are those that communicate clearly and efficiently.

The following questions were asked by questionnaire of the four staff on this project. Their replies are listed below each question.

What, in your professional training, was most relevant to providing you with the knowledges and skills necessary for the performance of your duties on this project?

Research methodology courses.
English composition.
Testing experience.
Involvement in student conducted research project.
Supervision of research.
Dissertation (but only a little).
M.A. in statistics and reading in statistics.
Training in computer programming.

What specialized training should be required?

Actual research and statistical experience in a project, including report writing.
Statistical theory.
Experience in managing research and working with a variety of educators and lay groups.
Experience in collecting, processing, and interpreting results of data.
Experience in developing new measurement techniques.
Practicum in research design, and in report writing.

Appendices

Appendix A: AEL Model of Development

This appendix contains a document of AEL which describes their model for educational development. This document is exactly as printed by AEL.

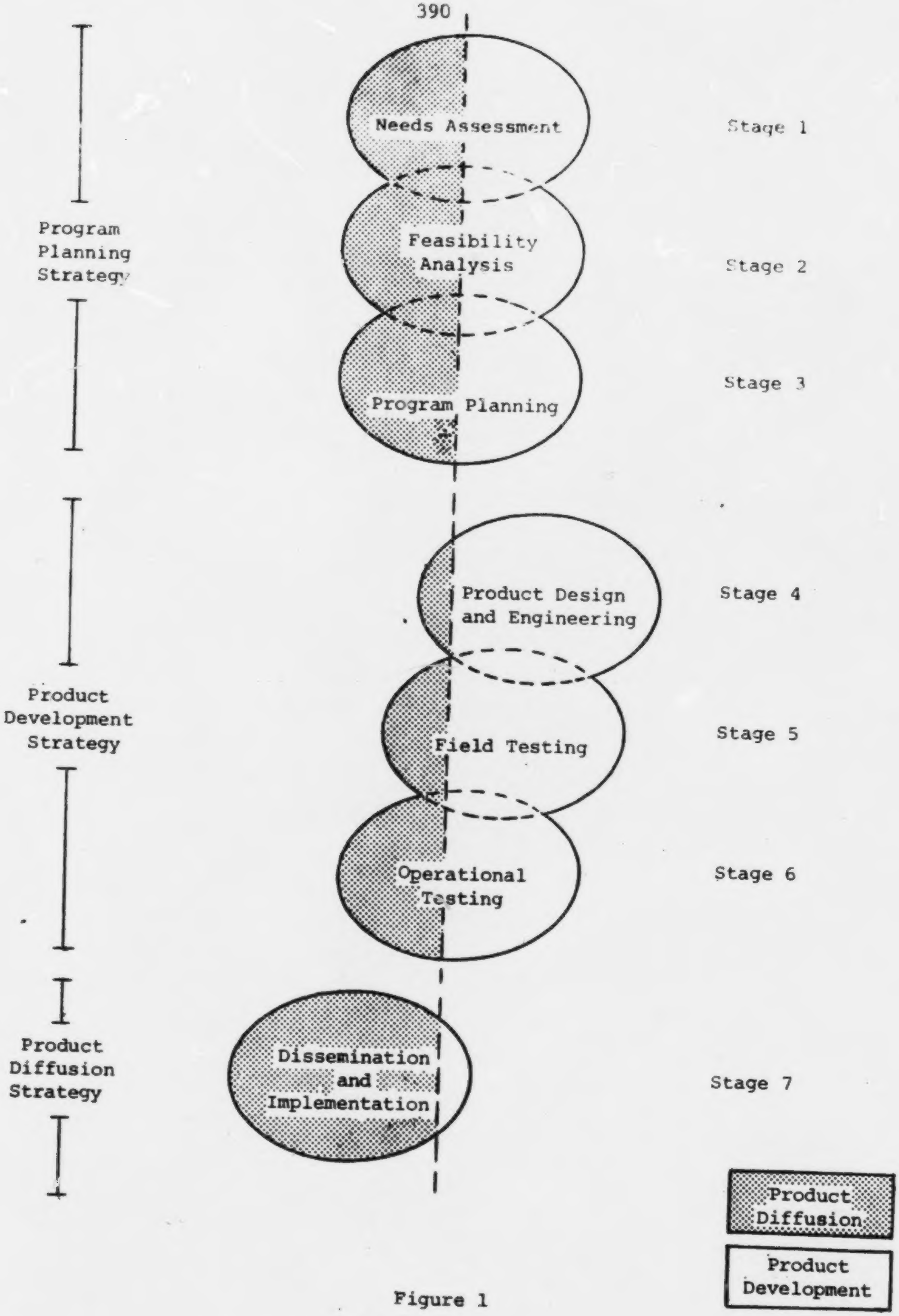
Program Planning Strategy
Product Development Strategy
Product Diffusion Strategy
Needs Assessment
Feasibility Analysis
Program Planning
Product Design and Engineering
Field Testing
Operational Testing
Dissemination and Implementation
Stage 1
Stage 2
Stage 3
Stage 4
Stage 5
Stage 6
Stage 7
Product Diffusion
Product Development

Figure 1

AEL MODEL FOR EDUCATIONAL DEVELOPMENT

Stage 1: Needs Assessment
Stage 2: Feasibility Analysis
Stage 3: Program Planning
Stage 4: Product Design and Engineering
Stage 5: Field Testing
Stage 6: Operational Testing
Stage 7: Dissemination and Implementation

As is indicated in Figure 1, the first three stages contain the series of decisions which make up Program Planning Strategy. The importance of the function of diffusion in Program Planning Strategy is illustrated by the fact that to plan a program to develop a product which attempts to solve a problem of no concern to educational practitioners or which cannot be implemented would be a wasted effort.

The fourth, fifth, and sixth stages contain the decisions which make up the Product Development Strategy. Here the product development function is of more importance than the product diffusion function, but some diffusion activities are required during these stages, particulary in Stage 6.

The seventh stage, Dissemination and Implementation, contains a continuation and culmination of the steps taken to carry completed outputs forward to produce the intended outcomes with the specified target populations and constitutes the Diffusion and Implementation Strategy. Here the product diffusion function is of major importance.

Internal to each stage is a series of activities, outputs, and criteria for advancing to the next stage of work. Any development efforts not meeting the specified advancement criterion in Stages 2 through 6 are recycled until the criteria are satisfied, or alternatively, a decision is made to abort the effort. This recycling process, with resulting improved performance, is fundamental in educational development and is apparent in the statement of activities in each stage of development.

Stage 1: Needs Assessment

The purpose of the needs assessment stage is to determine the priority of educational needs of the region which are appropriate for solution by educational development activities.

Activities: 1) Collection and analysis of regional educational and demographic data; 2) assessment of lay and professional perceptions of regional educational needs; and 3) ranking of educational needs in priority order based upon significance and probability of implementation of solutions.

Outputs: 1) An information base to assist in decision-making relative to appropriate attacks on educational problems; and 2) a priority list of regional educational needs whose solutions can be implemented.

Advancement Criterion: High probability that the priority needs listed correspond to actual needs and can be solved by educational development products.

Stage 2: Feasibility Analysis

The purpose of feasibility analysis is to determine if it is feasible for the Laboratory to plan a development program with objectives to meet a specific educational need.

Activities: 1) Selection of a specific regional need; 2) determination of general outcomes to be achieved by the products of the development program; 3) application of the following feasibility criteria:

a. Are resources available or obtainable to mount the necessary developmental effort?

b. Does the necessary knowledge exist to develop an acceptable (to achieve the general outcomes) solution?

c. Is the program to be developed consistent with the mission of the Laboratory?

d. Is the need of enough importance to make implementation probable?

e. Will the estimated cost of the product not be prohibitive to the consumer?

and 4) determination of the objectives of a program which is to be developed.

Outputs: 1) Evidence of the selected educational need; 2) statement of general outcomes desired as a solution to the need; 3) comprehensive documentation that a program can be successfully developed and implemented by the Laboratory; and 4) a statement of objectives to be achieved by the program to be developed.

Advancement Criterion: High probability that an educational development program to achieve specified objectives could be supported by anticipated Laboratory resources.

Stage 3: Program Planning

The purpose of the program planning stage is to decide upon a specific program and prepare a plan for developing the product.

Activities: 1) Definition of alternative programs with firm estimates of associated costs-to-benefits for target populations; 2) estimation of development costs for each alternative, 3) determination of most appropriate program; 4) preparation of program work plan; and 5) determination of level of acceptability of proposed products through contacts and involvement of regional constituencies.

Outputs: 1) Documentation of cost-benefit ratios for alternative solutions; 2) documentation of estimated development costs for each alternative; 3) documented basic program plan detailing problem to be solved, specific product objectives, product development and diffusion strategies, and work plan with costs by development stages; and 4) documentation of constituencies' receptivity to program.

Advancement Criteria: 1) High probability that the program as planned will achieve the objectives to ameliorate the need; 2) the approval of the Basic Program Plan by the U. S. Office of Education; and 3) evidence that regional constituencies are receptive to the proposed solutions.

Stage 4: Product Design and Engineering

The purpose of the product design and engineering stage is to design, construct, preliminary test, and redesign the product.

Activities: 1) Preparation of specifications for the product; 2) preparation of the design of the product; 3) preparation of procedures and instruments for product evaluation; 4) consultation with and support of regional constituencies regarding features and possibilities of product design; 5) construction of prototype and/or elements in limited, simulated environment; and 6) redesign and reconstruction of prototype to eliminate observable deficiencies.

Outputs: 1) Prototype product; 2) evaluation procedures and instruments; and 3) evidence on consistency of product with potential users' expectations.

Advancement Criteria: 1) Documented high efficiency of product in producing specified outcomes in limited, simulated environment; and 2) evidence that the product is consistent with potential users' needs and capabilities.

Stage 5: Field Testing

The purpose of the field testing stage is to test the product, under Laboratory control, with a sub-set of the target population in a setting approximating a typical educational environment to ascertain whether the product can produce stated outcomes.

Activities: 1) Identification and establishment of relationships with constituencies for field test site; 2) placement of product in operational mode; 3) testing of product; 4) product revision based upon field test data; and 5) provision of full information on field test to regional constituencies.

Outputs: 1) Documented field test results of the use of the product; and 2) revised product.

Advancement Criteria: 1) Evidence that the product meets specifications and high probability that it will produce specified outcomes in an operational test; and 2) evidence of interest in the product on the part of regional constituencies.

Stage 6: Operational Testing

The purpose of the operational testing stage is to test the product, with a minimum of Laboratory control, in a typical educational environment to ascertain if the product can produce stated outcomes in the target population.

Activities: 1) Identification and establishment of relationships with constituencies for operational test sites; 2) placement of product in operational mode; 3) test of product; 4) product revision based upon operational test data; 5) provision of opportunity for site visits, full information on availability of product to regional constituencies; 6) production of materials dealing with problems unique to implementation; 7) exploration of possible relationships with regional agencies which could serve as linkages in implementation; and 8) exploration of the possibility of marketing through commercial publishers or manufacturers and other means.

Outputs: 1) Documented evidence of the results of the operational test; 2) a revised and tested product; and 3) readiness among regional constituencies for widespread implementation of the product.

Advancement Criteria: 1) Evidence that product objectives are met at an acceptable level; and 2) product in a form to be broadly disseminated and implemented.

Stage 7: Dissemination and Implementation

The purpose of the dissemination and implementation stage is to achieve widespread implementation of the product by capitalizing upon the readiness for adoption by regional constituencies built during earlier stages.

Activities: 1) Completion of agreements for marketing through commercial publishers or manufacturers and other means; 2) activation of institutional linkages to advance implementation; 3) provision for information on necessary supporting systems for implementation; 4) provision of full information on the product and costs to implement to regional constituencies; and 5) maintenance of a record of product adoption and user satisfaction.

Output: Reliable, proven product widely adopted and implemented.

There are wide variations in requirements for resources at different stages of development. Resource requirements are minimal through the first stages; accelerate sharply through the stages concerned with design and engineering, field testing, and operational testing; and then taper sharply during dissemination and implementation.

Appendix B: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs areound which interviews were conducted. These statements were extracted from discussions with interviewees, and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J: Structure of Standards.

J-1 Standards against which outputs are judged. (output oriented)

J-2 Standards against which processes and/or operations are judged. (process oriented)

Code LM: Primary Categories of Standards.

TASKS

Code NO: Clusters of Tasks.

ENABLERS

Code S: Structure of Enablers.

S-1 Knowledge.

S-2 Skill or ability to perform.

S-3 Sensitivity or awareness.

Code UV: Primary Categories of Enablers (knowledges, skills or sensitivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the nine analyzed outputs is cited below within a rectanglular box. Listed under each are the interview statements relevant to that output.

P-01: Evaluation Report: Early Childhood Education Program 1969-70 Field Test

STANDARDS:

J	LM	
1	13	Favorable written critique by paid consultants.
1	13	Favorable verbal critique by paid consultants.
1	04	Report "communicates" (is understandable, etc.) with target audience.
2	04	Technical reports completed on time.
2	04	Final evaluation report completed within contract time.
2	35	Outside agencies accept program (explicated by Evaluation Report).
1	29	Program produces acceptable gains in pupil readiness for 1st grade.
1	13	Approval by Board of Directors.
1	08	Professional researchers indicate that the report is of high quality.
1	09	Reports are statistically accurate.

TASKS:

NO	
21	Obtain (hire-contract) consultants to discuss and critique evaluation efforts.
04	Write introduction and initial parts of report at level of target audience (school superintendent).
22	Prepare work schedule to establish deadlines for submission of technical reports.
03	Decide on basic evaluation report for format with staff.
01	Identify target audience toward which report will be aimed (with staff).
24	Confirm format plan with administration.
22	Prepare task outline (time line) for staff contributions (mini-PERT).
31	Help each other by advising in areas of expertise.
06	Edit each others work as it is drafted.
24	Check statistical accuracy of all data compilations.
04	Write summary section to include salient points.
22	Direct support services to type final master copy.
06	Proofread typed master copy before reproduction.
22	Direct support services to print and bind report.
29	Discuss report with administration.
32	Present findings to Board of Directors.
32	Report findings at AERA convention.
29	Discuss with staff to achieve mutual understanding (low level policy establishment).
25	Interpret AEL policy for staff.

ENABLERS:

S	UV	
2	10	Skill in statistics to be able to quickly spot inaccuracies.
2	02	Skill in interpersonal relations to coordinate efforts.
2	29	Skill in interpersonal relations to get people to do acceptable work.
1	02	Know the general field of educational statistics.
3	25	Sensitive to individual differences in staff.
3	02	Remember that training of evaluation has been as individuals not group workers.
3	30	Aware of feelings of target audience and outside relationships required.
2	18	Matching staff peculiarities to feelings of target audience ("We don't want no beards in here").
3	03	Sensitive to division's need for a sense of individuality and independence from other programs.
2	02	Skill in offsetting emotional problems with staff to maintain a productive atmosphere.
3	38	Be aware of staff interaction (or concerns of staff).
2	14	Writing ability.
2	20	Ability to judge someone elses writing.
1	03	Must have a high level of general educational research knowledge.
1	03	Must know current research developments and practices.
1	03	Must know research emphasis of universities from which staff has come.
1	03	Know what different analyses are appropriate to the problems.
1	03	Know the degree of sophistication of analyses required by data, audience, problem, etc.
1	23	Know degree of sophistication in presentation required by data, audience, problem, etc.
2	34	Ability to coordinate the activities of different groups of people.

P-02: AEL Model for Evaluation (Inhouse memo-paper)

STANDARDS:

J	LM	
1	13	Staff members approve document.
1	23	Staff members make use of document (model) in future efforts.
2	34	Staff members remember and speak well of document.
2	28	Agreement is reached on how evaluation should be integrated in AEL efforts.

TASKS:

NO	
01	Study model for evaluation (general) which was prepared by predecessor.
01	Outline responsibilities for summative evaluation for AEL.
02	Discuss responsibilities for R&D division with Director and other staff to clarify responsibilities.
06	Modify outline to reflect classification and interpretations of responsibilities.
02	Dictate rough narrative of position-paper (describing model) in home setting.
24	Submit rough draft to Director and Assistant Director for comment.
06	Edit rough document describing and illustrating evaluation model.
31	Submit edited, rough document to program cabinet (program directors) by presenting paper in cabinet meeting.
31	Participate in cabinet meeting to discuss paper (concepts and effects) ("hard talking and thinking").
04	Write in final form incorporating any modifications resulting from cabinet meeting.
22	Direct support services to type and duplicate final form of document.
31	Distribute copy to all interested parties.

ENABLERS:

S	UV	
1	03	Knowledge of current thinking in field.
1	03	Knowledge of literature about evaluation models
2	19	Skill (experience) in actually constructing models in other contexts.
1	03	Know what can be done--scope and limitations of models.
2	02	Ability to work with others constructively.
2	18	Skill in selecting relevant parts of other people's work.
3	31	Feeling of what it would look like.
2	14	Skill in writing meaningfully.
3	30	Sensitive to what level of writing will be appropriate for audience.
3	16	Sensitive to what the administration expects.
3	16	Sensitive to the administration's thinking so that personal goals can be maximized within limits set by organization.
3	16	Sensitive to controlling influences in direction of effort.
3	01	Sensitive to feelings of staff.
2	18	Skill in matching staff capabilities to work.
1	18	Knowledge of staff interests and capabilities.

P-03: ECE Evaluation Budget

STANDARDS:

J	LM	
1	12	Available money covers cost of operation.
1	11	Few if any shifts of money from one category to another are required.

TASKS:

NO	
02	Plan (think about) what evaluation efforts will be attempted for ECE during the next year.
21	Consider the need for new staff to accomplish planned efforts.
21	Consider work needs in all previously used categories--travel, staff, support services, equipment.
03	Consider need for new categories--computer programming, etc.
02	Confer with other key staff to determine any special requirements.
22	Estimate cost of requirements in each category.
22	Total amount of money required to perform services planned.
06	Modify plans to bring total figure into line with expected possibilities for funding.
02	Discuss budget with Laboratory administration.
31	Participate in budget review conference to determine Laboratory funding for each division.
22	Keep running account of money spent.

ENABLERS:

S	UV	
1	11	Knowledge of what services cost.
1	11	Knowledge of what efforts cost.
2	22	Skill in estimating costs over a year.
2	21	Skill in maintaining awareness of expenditures.
1	21	Know Laboratory system of record keeping.
2	23	Skill in presenting a "case" for required money.

P-04: Technical Reports (in 1969-70 Field Test Evaluation Report)

STANDARDS

J	LM	
1	09	Colleagues confirm that conclusions reported are actually shown by data.
1	04	Report is readable--flows well.
1	08	Acceptable to "research community."
1	24	Understandable to school superintendents.
1	12	Report honestly maximized "treatment" effects.
1	12	The report at least reports the statistical means so a reader could recalculate t-tests, ANOVA, etc.
1	24	The technical level of the report reflects the assessed technical level of the intended audience.
2	40	The report is published in a professional journal.

TASKS:

NO	
02	Confer with colleagues to determine what data reduction and analysis is to be done.
05	Interpret computer printouts to insure understanding of implications.
04	Write out verbal explanation of what each segment of data analysis shows.
04	Explain unexpected or unplanned results.
05	Identify and describe those results attributed to "treatment" (in each subtest).
05	Identify and describe contaminating variables (in each subtest).
04	Combine descriptions of each subtest into logical order and sequence.
04	Make rough outline of report.
04	Write narrative paragraphs to fit outline.
04	Write coherent narrative report connecting and improving outline paragraphs (draft).
06	Proofread draft of report for continuity and clarity.
01	Review data (individual observations) for the entire year.
05	Organize data according to age, sex, and group the child was in.
05	Compute statistical averages using a desk calculator.
04	Write first draft of the report using a typewriter.
06	Edit first draft of report for language misuse and accuracy of interpretation.
24	Confirm that conclusions are correct by discussing draft with colleagues.

ENABLERS:

S	UV	
1	04	Theories of intelligence.
1	03	Factor analytic theories.
1	01	Know English composition.
1	01	Understand "subject matter" of what you're measuring.
2	10	Statistics.
2	14	English composition.
2	35	Making writing readable--grammatically correct.
2	35	Making writing readable--level appropriate for intended audience.
2	05	Able to break tasks down into successive work units.
2	05	Able to schedule your own work.
2	45	Able to assess your own progress.
2	09	Able to put abstract ideas together to reach logical conclusions.
2	27	Able to use a desk calculator.
2	27	Able to use a typewriter.
2	10	Able to compute statistical means.
2	10	Able to compute t-test.
2	31	Able to assess the technical level of the intended audience by review of recent issues of the journal to which the reports will be submitted.
3	40	Sensitive to work progress--time lines.
3	42	Excited by research.
3	41	Desire to find out--why does that happen?

P-06: Summative Evaluation Data

STANDARDS:

J	LM	
1	07	Faith in instruments ability to measure what you wanted it to.
1	21	Test administrators are not associated with target population.
1	21	Test administrators are specially trained.
2	07	Test administrators are supervised.
2	05	One child tested per tester per day(in the child's home).
2	07	Record system gives accurate status each week.

TASKS:

NO	
03	Identify children in target population by number.

NO	
03	Code children by treatment group, age, sex, etc.
03	Check to insure that all identified children are still in program.
04	Collect (package) all testing materials preparatory to test administrating.
05	Identify testing materials with child ID number and name.
21	Advertise (in newspaper) vacancy for testers.
21	Screen applicants for ability to administer tests.
21	Hire selected applicants to fill requirement for testers.
21	Arrange 3-day training session for testers.
31	Present orientation to testing program.
04	Prepare "caution sheet" training aid for tester use.
21	Discuss unique requirements of each test with tester.
21	Conduct contrived testing session with video tape feedback for correction of errors.
21	Conduct practice test administration.
31	Provide test results to practice environment.
03	Select sample to be tested.
23	Prepare testing routes for practical scheduling.
23	Arrange testing session with parents.
29	Spell out groundrules with parents.
05	Conduct testing session in child's home.
05	Total test scores if simple computator.
05	Compile test scores to compute IB, adjusted scores, etc.
21	Hire additional clerical help if required.
24	Supervise clerical help in score compilation.
04	Work out data-card format for computer processing.
05	Sort raw data into age/sex groups.
05	Transfer scores and compiled data to data-card work sheets.
05	Key-punch data cards for computer processing.

ENABLERS:

S	UV	
1	04	Know design information on many standardized tests.
2	18	Ability to select appropriate standardized tests.
1	08	Know what you're trying to assess.
1	23	Know capabilities (physical) of target audience.
1	02	Know learning theory.
2	29	Ability to get people to adhere to schedules.
2	25	Skill in observing people's behavior.
3	04	Aware of your own behavior with children.
2	25	Skill in observing the results of your teaching.
3	35	Aware that feedback must occur to effect change.
3	15	Sensitivity to time lines.
3	47	Willing to be aggressive in achieving objectives.
2	11	Ability to hold to standards without compromise.
3	40	Must be goal oriented.
2	04	Able to supply feedback.
2	43	Able to supply reinforcement.
2	11	Able to do a lot of repetitive work.

S	UV	
3	47	Tolerance for repetitive effort.
3	02	To your own shortcomings.
2	37	Be able to detect capabilities in others.
3	37	Be willing to delegate work you're not capable of to people having those capabilities.

P-08: Criterion Referenced Test: "Appalachia Preschool Test of Cognitive Skills"

STANDARDS:

J	LM	
1	01	Achievement of 80% to 90% of objectives covered by test.
1	19	Test items reflect the behaviors taught.
1	08	Confirmation of quality by curriculum expert.

TASKS:

NO	
01	Identify (list) 175 curriculum objectives of Early Childhood Education Program.
01	Randomly select (every third) from list.
04	Think up test items for each selected objective.
04	Write 65-70 items in style of Peabody Picture Vocabulary Test.
04	Provide four alternative response choices.
02	Confirm appropriateness of items as to format and difficulty by conferring with curriculum choices.
02	Confer with curriculum committee to confirm appropriateness of items.
31	Meet with graphic artist to explain specs. for test illustrations.
03	Establish specifications (not written) for test illustrations.
04	Draw illustrations for test items.
04	Print test booklets in appropriate quantity.

ENABLERS:

S	UV	
1	04	Testing theory-psychometric theory.
1	02	Reliability and validity.
3	03	Being complete in what you do.

S	UV	
2	39	Skill in developing objective tests.
3	06	Must "like" a behavioral approach.
1	23	Must know characteristics of target audience.
2	02	Skill in interacting with others to cross check your efforts.
3	34	Willingness to cross check your work.
2	38	Ability to adapt other systems to local situation.
2	14	Ability to write coherently.
2	35	Ability to write in terms meaningful to target.
3	47	Willingness to work as a team member.

P-13: Home Visitor Observational System

STANDARDS

J	LM	
1	05	Ability of the observation system to produce behavioral data for informal and formal comparative analysis in making decisions about behavioral change and changes in interaction technique.
1	22	Categories of the observation system accurately classify all behavior that occurs in the observation period.
1	11	The instrument is just sophisticated enough, judged by output, to accomplish its goal--not too simple and not too complicated.

TASKS:

NO	
24	Watch home visitors interact with children and parents in field-test site homes.
01	Decide from previous experience with the Flander's interaction analysis observational systems the adaptability of a Flander's observational system to the home visitors intervention technique.
04	Eliminate first category of Flander's 27 category observational system, which is "accepts feeling" because it occurs so infrequently in subjects observed.
04	Expand Flander's category "praise" into three categories of "praise," "accurate feedback," and "elaboration" because of the emphasis in the home visitor intervention technique.
04	Expand Flander's category "using and developing student ideas" to include "asking questions about student statements."
04	Expand Flander's category "criticism" to include "explanation of negative feedback."

ENABLERS:

S	UV	
1	03	Knowledge of Flander's interaction analysis observation systems.
2	25	Skill in observation of people interacting in a social situation.
2	19	Able to synthesize informal observations to derive categories of social interaction.
3	44	Have an interest in people and how they interact in a social context.

C-22: Coordination of Field Test Data Collection

STANDARDS

J	LM	
2	04	Tasks are completed on schedule.
2	32	Testing materials, etc. and supplies used by the field test staff are available when needed.
2	28	Personnel problems are resolved that allow work schedules to be met.
2	13	Budgetary expenditure is within the agreed limits.

TASKS:

NO	
29	Help resolve problems the home visitors have with parents or children in field test homes.
24	Make sure home visitors complete their tasks on time.
29	Make sure that materials (recording tapes, coding forms. etc.) get to home visitors on time.
21	Hire testers (coders) from pool of unsolicited applicants by screening interview.
32	Arrange for visitors (public) to see the mobile classroom and the home visitors.
30	Provide list of children in the field test site for selection of a sample.
21	Train newly hired testers in how to use test materials (coding forms).
22	Assign testers to home visitors for data collection.
30	Make sure test results get to Research and Evaluation Division people.
22	Negotiate special budget requests for the field test site with supervisors.

S	UV	
2	23	Able to communicate with supervisors to obtain money to carryout field testing.
2	02	Able to help resolve staff problems by listening to their complaints and offering suggestions.
2	29	Skill in criticizing work of staff by providing supporting data for the criticism and offering suggestions for improving efforts.
3	02	Sensitive to the amount of pressure staff is working under.

P-24: Research Evaluation Design: Social Skills of Children

STANDARDS:

J	LM	
1	13	Positive feedback from supervisor after he has reviewed proposed research design memo.
1	16	Consulting of reference book in research design (Cochran and Cox) shows there to be no better alternative design.
1	11	The research design has a coding system that minimized time in coding.
1	11	The research design has a coding system that is convenient (easy to use) to the coder.
1	21	The research design has a coding system that maximized reliability of the coding by making the coding least difficult and requiring little thinking.
1	09	The category sets of the research design are totally inclusive. They do not leave out any possible behavior that the child will perform and will not be coded.

TASKS:

NO	
29	Maintain communication with associate at the field-test site by telephone and personnel visits.
05	Observe children in public school as pilot study to prepare research data.
05	Select test task by running pilot study with local public school children.
03	Decide on coding system to minimize time, give convenience to the coder.

NO	
03	Decide on statistical measure to determine reliability of coding.
01	Discuss with associates what factors (age, sex, etc.) might be affecting behavior of children under observation to account for those factors in the analysis.
03	Draw chart identifying the factors in columns and subjects in rows.
29	Instruct associate at field test site to number subjects in manner most compatible with computer systems to reduce manual handling.
06	Redesign research procedures to meet operational restrictions (number of subjects inadequate) that were not known initially.
05	Specify control parameters for the computer program to allow reduction of the data.
31	Prepare memo describing proposed research design.
24	Supervisor reviews proposed research design memo to determine adequacy.

ENABLERS:

S	UV	
1	03	Knowledge of inferential statistics such as t-test or analysis of variance used to prove or disprove a hypothesis.
1	02	Knowledge of the theory of statistics.
2	10	Able to interpret significance levels of a statistical test from knowledge of theory of statistics and nature of data used.
3	21	Sensitive to different analysis possibilities inherent in the nature of your data.
2	19	Able to imagine various behaviors of subjects as you prepare evaluation design to identify significant variables to measures.
1	04	Knowledge of computer language FORTRAN IV.
1	04	Knowledge of what a specified computer program can do and what kinds of data are suitable to the program.
2	14	Able to write memos that clearly describe a proposed research design.
1	03	Knowledge of sampling techniques such as randomizing and stratifying.

CASE PROFILE NO. 8

Written by

Lee Green
Diane G. Jones

PROJECT TITLE: Monitoring Innovation Processes in Education

(MPIRE Project)

AN EDUCATIONAL EVALUATION PROJECT CONCERNED WITH: The preparation of a set of guidelines which will assist in the creation of an ongoing monitoring system for observation of the process of innovation in public schools.

A PROJECT OF: Center for Research on Utilization of Scientific Knowledge
The Institutes for Social Research
University of Michigan
Ann Arbor, Michigan

This profile has been prepared according to

PROFILE FORMAT No. 2

Three profile formats are represented in this volume. The reader should refer to this number when making use of the reader's GUIDE to the profiles.

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Chapter I: Overview

This chapter contains a narrative introduction to the project for Monitoring Innovation Processes in Education (MPIRE), including the objectives, rationale, and significance of the project and the context in which the project operates.

Synopsis of the Project

Title: Montoring Innovation Processes in Education.

Responsible Institution: University of Michigan, Center for Research on Utilization of Scientific Knowledge, The Institutes for Social Research.

Funding Source: U.S. Office of Education, National Center for Educational Communication.

Funding Duration: June 15, 1970 to December 15, 1971. (18 months)

Observation Dates: June 1971.

Present Stage of Development: Mid-Project

RDD&E Focus of Project: Educational evaluation, with a secondary focus on educational development.

Expected Outcomes:
1. A set of recommendations on priority needs for research and development in the areas of dissemination and utilization.
2. A set of guidelines for continual monitoring of the process of innovation in schools.
3. A questionnaire and administration procedures to be used in such monitoring.

Level of Funding and Duration: Medium-Low. (level 3 of 7 levels)

Agency Setting: Research and development center.

Summary of Professional Staff (Current):

Total Full Time Equivalence (man years):	1.45
Number of Personnel Assigned:	
Prime Contractor	4
Subcontractor and others	7

Professional Specialties of Staff (interviewees only): social psychology, communication, international education, statistics.

Objectives, Rationale, and Significance of the Project

The primary goal of this project is to develop a set of guidelines for a comprehensive monitoring procedure which will provide the sponsor with continual, accurate, and current information on the processes of innovation in public schools. A secondary goal is to create and put into action a surveillance and review committee composed of seven leading scholars. This committee will meet three times during the life of the project. It is called the Research Advisory Committee on Innovation Processes in Education (RACIPE). It is responsible for providing recommendations for needed research and development activities in the areas of dissemination and utilization of knowledge in U.S. school districts, and for developing instrumentation and methodology for this survey of activities. The purposes of the survey are to (a) provide empirically accurate and representative baseline data for comparison with future sampling, (b) provide up-to-date data for the RACIPE scholars to use, and (c) provide immediate data for current, national policy planning.

Another activity in attaining the project goals was provided by a small amount of additional funding. This enabled the Project Director and one staff member to attend a conference in Norway of the Organization for Economic and Cooperative Development, and to visit several Norwegian information dissemination centers and research utilization agencies. Prototype instruments prepared for the MPIRE Project were used as data-gathering tools at these sites. The case studies resulting from this trip are considered to be additional outputs of this project, and the information and insight provided by this experience will be incorporated into the recommendations offered in the project's final report.

The final report will include: (a) recommendations as to the short and long range use of the instrumentation and methodology of this sample survey, (b) three RACIPE reports and an analysis of each, and (c) integrating information about these two elements from the experiences of the staff of this project. The project will, through its final report, propose a design for a Surveillance and Monitoring Process (SMP) to provide periodic data to policy planners concerning the current state of educational innovation.

The project came into being because of the awareness of persons concerned with national policy planning in education about both the seemingly immature nature of the innovation systems and processes in schools of this country, and of the incomplete and inadequate nature of the data about those systems and processes. In order to plan for needed research and development it was decided that baseline data, recommendations from top scholars in areas related to dissemination and utilization, and a process for continuous or intermittent monitoring of innovation processes in schools were needed. With such information it is felt that it would be possible to prioritize new programs and efforts designed to improve the knowledge delivery system at the school district level.

The significance of the project lies in its three areas of uniqueness:

1. No previous studies of innovation used national rather than regional or local samples; therefore, this project is designed

to meet needs for generalization to national policy purposes.

2. This project is designed to reflect changes which have occurred in innovation processes resulting from Federal legislation in the 1960's. Almost all previous studies are 10 or more years old.

3. This project was generated from a comprehensive theoretical framework created by the Project Director, and is part of a long-range program to design and develop a nation-wide system for disseminating and using research-based information in education.

Context Within Which The Project Operates

Relationship to other agencies. The MPIRE Project resides (see Figure 1) in the Center for Research on Utilization of Scientific Knowledge (CRUSK), a division of the Institutes for Social Research (ISR), University of Michigan. Total funding for the project comes from the U.S. Office of Education (USOE) through the National Center for Educational Communication. Contact during the project is maintained with USOE in the form of three RACIPE reports.

The project is one of a series comprising a program with which the agency and the Project Director have been involved over a period of time. The program includes research, development, and training aspects, and is graphically illustrated in Figure 2. This figure has been only slightly modified from one which was included in the original project proposal.

Further efforts in this ongoing program may include a project designed to produce case studies of innovation implementation in public schools, to both record and shed light on that process.

Supporting and technological resources. Technical skills necessary for high quality outcomes of the project are provided by members of the project staff and consultants within ISR. These skills include computer programming, data processing, and survey research methodology and analysis. Support services (secretarial, printing, etc.) are close at hand, easily accessible, and provide prompt, top quality services.

CRUSK projects have the technical facilities of ISR available for their use, including a data processing section equipped with an IBM 360, coding and sampling staffs, and teams of behavioral scientists. ISR is noted for its national survey research methodology using probability samples, and from this, MPIRE will have the benefits of the accumulated experience of persons who have performed tasks related to those in its design.

Time line. This project has five fixed dates. These are the three RACIPE meeting dates, and the project beginning and ending dates. All other time decisions are flexible in order to maintain a high quality of work. The planned project work sequence is displayed in Figure 3.

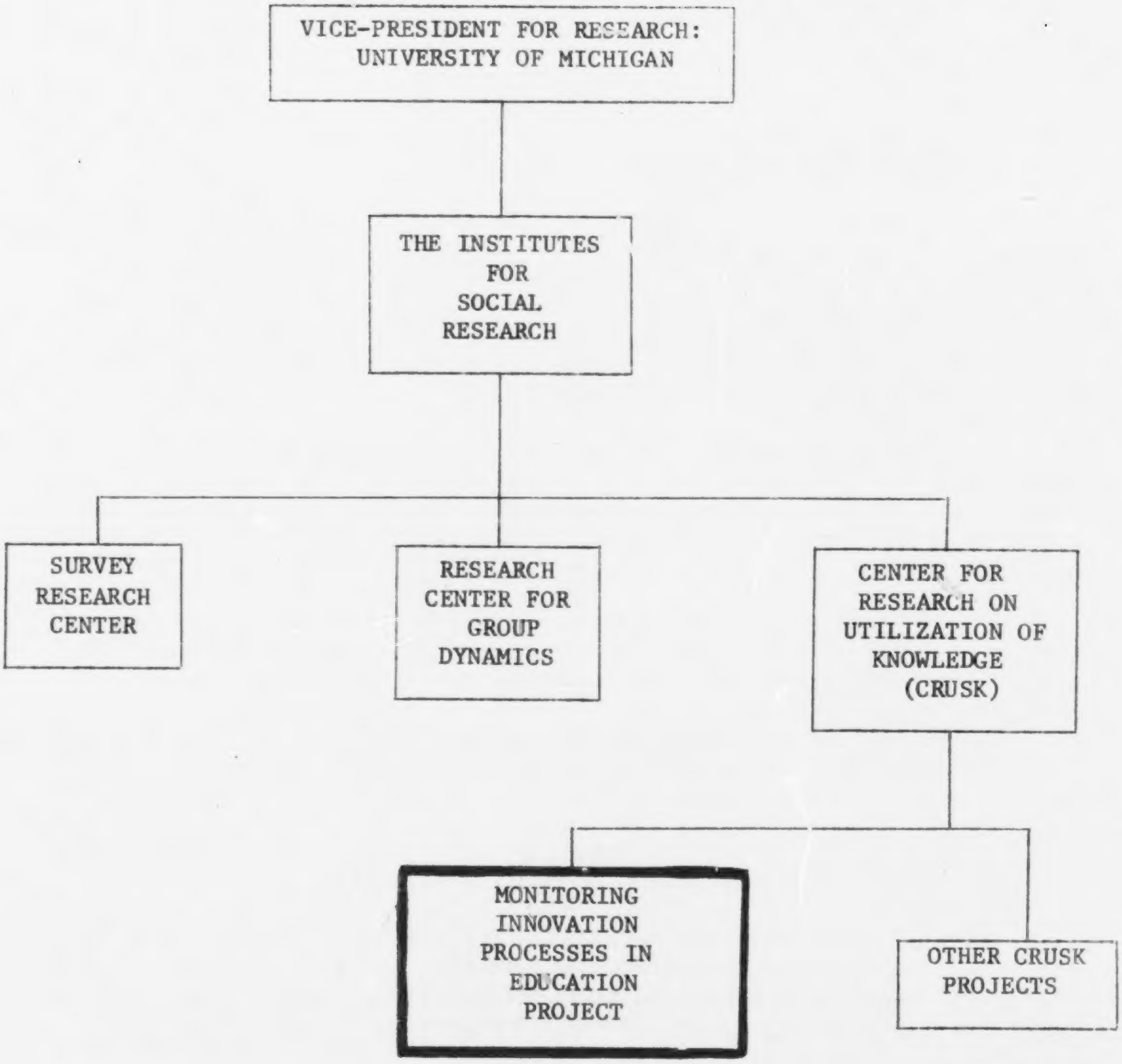
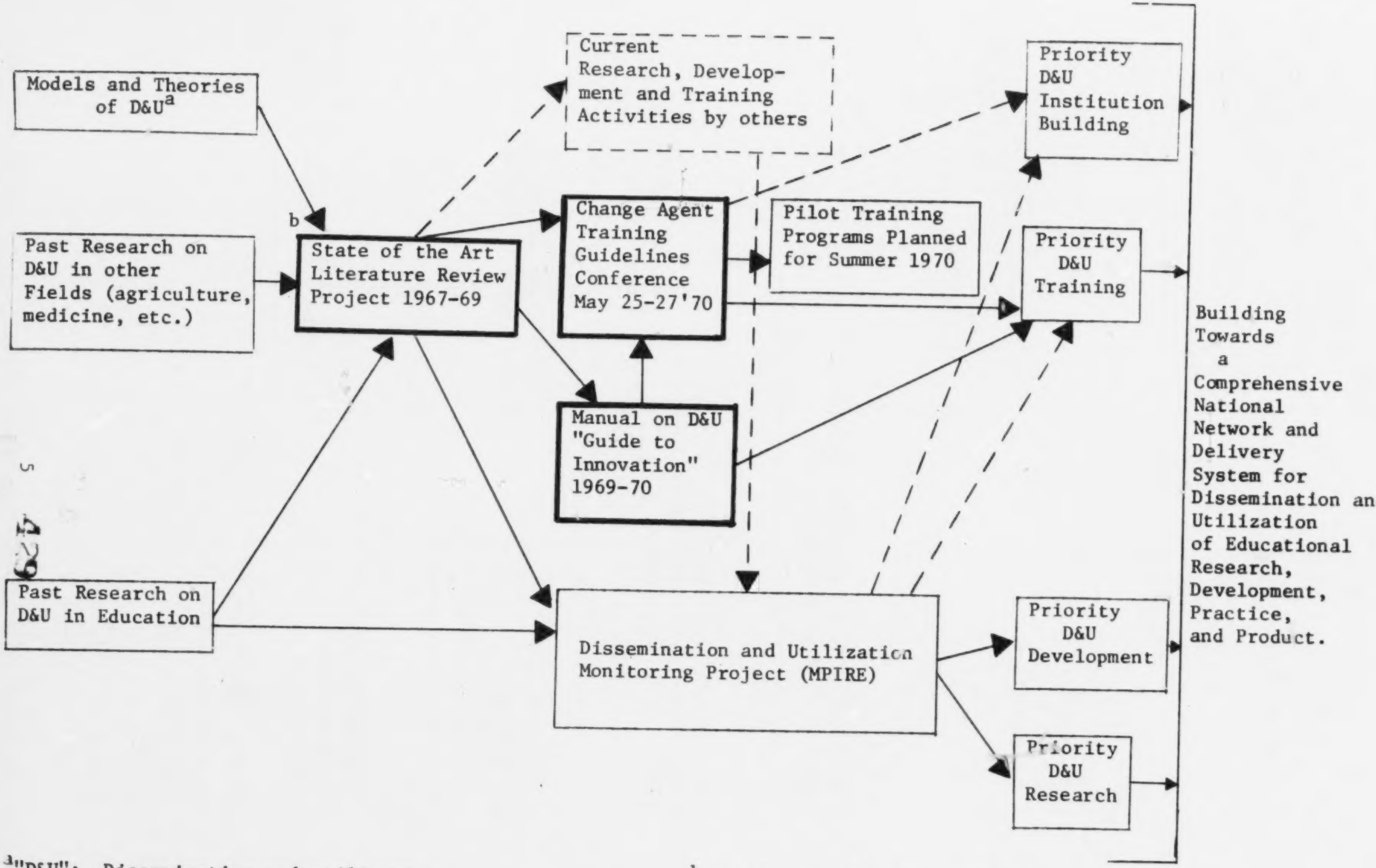

VICE-PRESIDENT FOR RESEARCH: UNIVERSITY OF MICHIGAN
THE INSTITUTES FOR SOCIAL RESEARCH
SURVEY RESEARCH CENTER
RESEARCH CENTER FOR GROUP DYNAMICS
CENTER FOR RESEARCH ON UTILIZATION OF KNOWLEDGE (CRUSK)
MONITORING INNOVATION PROCESSES IN EDUCATION PROJECT
OTHER CRUSK PROJECTS

FIG. 1. Contextual map.


Models and Theories of D&U[a]
b
Past Research on D&U in other Fields (agriculture, medicine, etc.)
Past Research on D&U in Education
State of the Art Literature Review Project 1967-69
Current Research, Development and Training Activities by others
Change Agent Training Guidelines Conference May 25-27'70
Manual on D&U "Guide to Innovation" 1969-70
Pilot Training Programs Planned for Summer 1970
Dissemination and Utilization Monitoring Project (MPIRE)
Priority D&U Institution Building
Priority D&U Training
Priority D&U Development
Priority D&U Research
Building Towards a Comprehensive National Network and Delivery System for Dissemination and Utilization of Educational Research, Development, Practice, and Product.

[a] "D&U": Dissemination and utilization of research-based knowledge and innovations.

[b] Bold outlined boxes represent previous projects conducted.

FIG. 2. Relationship of the project for monitoring innovation processes in education to past and current projects and future needs.

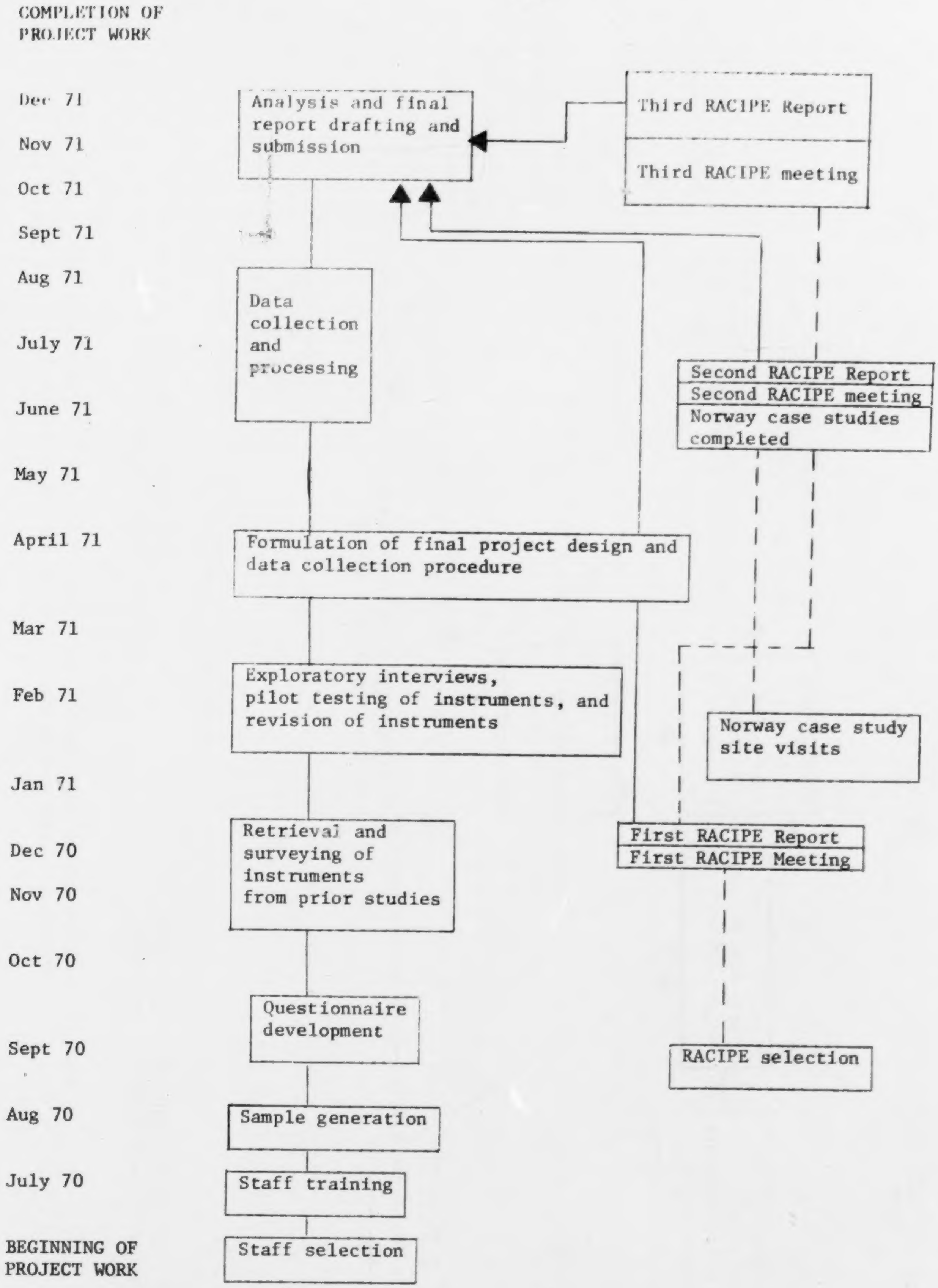

COMPLETION OF PROJECT WORK
Dec 71
Nov 71
Oct 71
Sept 71
Aug 71
July 71
June 71
May 71
April 71
Mar 71
Feb 71
Jan 71
Dec 70
Nov 70
Oct 70
Sept 70
Aug 70
July 70
BEGINNING OF PROJECT WORK
Analysis and final report drafting and submission
Third RACIPE Report
Third RACIPE meeting
Data collection and processing
Second RACIPE Report
Second RACIPE meeting
Norway case studies completed
Formulation of final project design and data collection procedure
Exploratory interviews, pilot testing of instruments, and revision of instruments
Norway case study site visits
Retrieval and surveying of instruments from prior studies
First RACIPE Report
First RACIPE Meeting
Questionnaire development
RACIPE selection
Sample generation
Staff training
Staff selection

FIG. 3. Time line.

After each RACIPE meeting, the completed report is submitted to the Project Monitor. These three reports, which include interpretation and analysis of the data from the meetings, will be part of the material used to prepare the final report of the project.

The fact that all staff members are programmed for less than full time on this project has caused some problems, as other activities impose difficulty in arranging for staff meetings and work completion. At the time of the project visitation in the spring of 1971, project work was approximately on schedule. The staff, however, anticipated time problems in data collection and processing, since the instrument development stage of the project had consumed more time than had originally been anticipated.

Physical/environmental setting. The project is conducted in a modern, spacious building, occupied by the Institutes for Social Research, on the University of Michigan Campus. This location provides access to an airport, libraries, and the facilities of the university. The project itself is conducted in pleasant offices in close proximity to other ISR staff offices, and shares secretarial space with them. This provides an interaction with other professional persons which has worked to the advantage of the project. The offices are well lighted, well furnished, and within a minute or two of cafeteria, lounge, and conference facilities. Data processing facilities also share the same building.

Chapter II: Parameters of the Project

This chapter contains information about the organizational structure of the MPIRE Project, its staffing patterns, and the roles and functions served by its personnel. It also provides description of the outputs identified in the project, and shows the dependent relationships of these outputs in an output map.

Project Structure

Staff structure. The MPIRE Project is one of several within CRUSK. Staff for this project includes two persons who worked on earlier CRUSK projects. The other two staff members are new to ISR. One is a graduate student completing a doctorate at the university, and the other is a doctoral candidate at another university. The staffing for the project has been stable from its beginning to the present.

The anticipated staff responsibilities were modified somewhat after the staff was selected. The first month of the project included a review of earlier related projects and an assessment of the skills within the staff as they related to the tasks of the project. The responsibilities described in Figure 4 are at variance with the project proposal, but were delegated in light of the actual strengths of the selected staff.

The involvement of one staff member has been minimal in the earlier phases of the project, with the exception of intense involvement in questionnaire development. As the project has moved toward data gathering and processing his involvement has increased. This increased involvement is also true of another staff member who is also involved primarily in data gathering and processing.

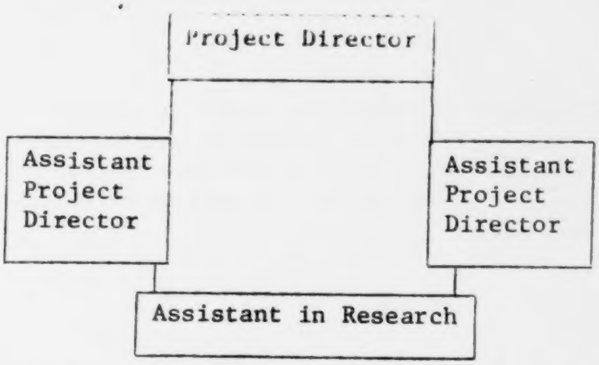
Consultants in survey research methodology and survey instrument development have been drawn from the staff of the parent agency as needed.

The RACIPE group was selected by the Project Director as a group of top experts in the field of innovation diffusion or related fields. They were selected for their national prominence in their own areas, for the relatedness of their own work to the larger program of which this project is a part, and for their expected abilities to work well in an advisory group which met between long intervals (6 months) for short periods (2 days). Diversity of backgrounds, areas of specialization, and experience was also sought in the formulation of this group.

Informal meetings of the four primary staff members occur frequently. Their offices are adjacent to each other and, whenever time allows, discussion of the project is natural and constant. Formal staff meetings occur if there is a task decision with a definite deadline, a problem that needs the attention of a staff member temporarily engaged elsewhere, or whenever else the Project Director decides a meeting is necessary.

Decisions are by consensus when possible. If disagreement occurs staff members have 48 hours to gather supporting data or documents before a final decison is made by the Project Director.

FORMAL STAFF STRUCTURE



FUNCTIONAL STAFF STRUCTURE

Shared Responsibilities:

1.[a] European trip, project description procedures, recommendations drawn from European trip, RACIPE administrative details.

2. Decisions, report drafts, strategy formation, instrument prototype review.

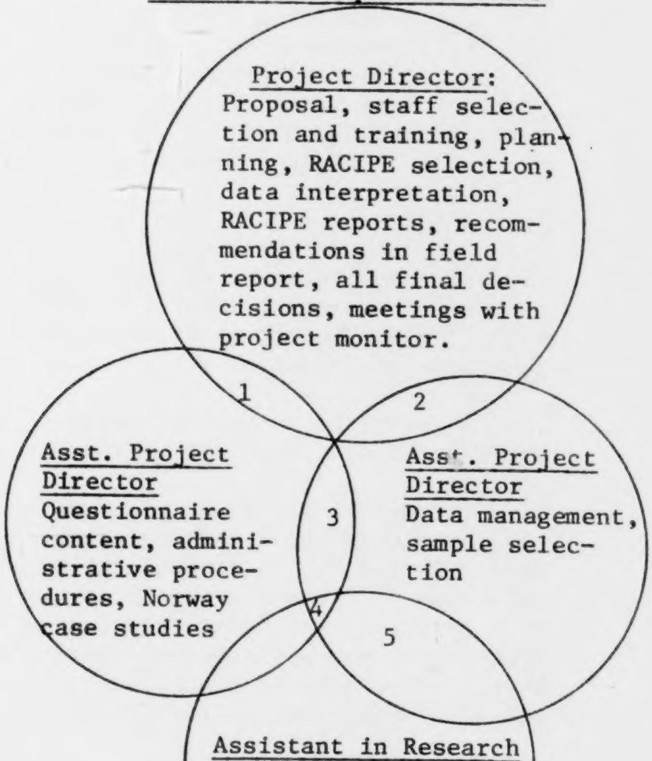
3. Questionnaire development and refinement.

4. Data processing plans, data analyses.

5. Data needs, assessment, sample selection processes, recommendations based on data results.

[a]These numerals correspond to those in the overlapping areas of individual responsibilities

Individual Responsibilities:



Project Director: Proposal, staff selection and training, planning, RACIPE selection, data interpretation, RACIPE reports, recommendations in field report, all final decisions, meetings with project monitor.

Asst. Project Director Questionnaire content, administrative procedures, Norway case studies

Asst. Project Director Data management, sample selection

Assistant in Research Code book, data processing needs, coordination

FIG. 4. **Project** organizational structure.

Project roster. During the site visit to this project all four of the staff members were interviewed generally about the project, and more specifically about its intended outputs and/or processes. Although not all outcomes of the project were interviewed around, most of the major outputs and management processes were included. Figure 5 displays descriptions of each staff member and the project outputs around which he was interviewed.

In the case of the output called "questionnaire", two staff members were interviewed, since they shared the responsibilities with the Project Director. It was felt that this questionnaire is a major output of the project, and therefore more than one view of its creation was sought.

Outputs Generated

The outputs of this project are described in two categoreis: production oriented and management oriented. A production-oriented output is defined as a tangible result of work efforts surviving in transportable form. A management-oriented output is defined as a work effort that results in describing a condition directly related to management operations.

A preliminary output list was prepared prior to interviewing which identified 14 of the projects outputs. These were associated through a preliminary interview with various members of the project staff, and an assessement and selection of outputs to be interviewed around was made. Selection of outputs was based on both the considered importance of the output to the completion of the project, and on the representativeness of the activity. Such selection was to provide a clear picture of the project without interviewing around all of its outputs.

Index of Outputs. A brief description of each identified project output is provided below. The code number shown is an arbitrary number composed of two parts: (a) a letter which permits easy identification of the output as production oriented (P) or management oriented (M); (b) a sequence number for all outputs irrespective of P or M. Those outputs interviewed around are preceded by an asterisk. The numerical designation of the outputs appears in various tables and charts permitting one to examine a description and match the data from other tables to it.

*P-01. Guidelines for Surveillance and Monitoring of Innovation Processes. This item is the final output of the project and constitutes the final report. Included in the report will be all of the data derived from the various phases of the project, interpretation and analysis of that data, personal experiences and integrative understanding of the staff which occurred during this project, and a set of recommendations for the installation and maintenance of a continual monitoring system.

P-02. The RACIPE (Research Advisory Committee on Innovation Process in Education) Reports. After each of the three RACIPE meetings a report will be prepared and submitted which includes all data from the meeting and an analysis of that data, including a set of recommendations for research and development priorities in the

Titles and primary responsibilities of project personnel.	Outputs around which each staff member was interviewed.
Project Director: Responsible for initiation, implementation and completion of all contracted activities as described in the proposal. (.50 FTE)[a]	M-04[b]. RACIPE Selection Process P-01. Guidelines for Surveillance and Monitoring of Innovation Processes M-05. Selected and Trained Staff
Assistant Project Director: Responsible for supervision and implementation of data management, for creation of sample selection process, and for cooperating on questionnaire development. (.20 FTE)	P-08. Sample Selection Procedure and Selected Sample P-06. Questionnaire
Assistant Project Director: Responsible for implementation of questionnaire development plans, questionnaire administration procedures, RACIPE administrative details, and for preparation of the ERUP studies. (.50 FTE)	P-06. Questionnaire P-07. Questionnaire: Administration Procedure P-03. Reports on European Research Utilization Projects (ERUP)
Assistant in Research: Responsible for managing data gathered by questionnaire, determining data processing needs, preparing code book, assisting in sample selection process, and coordinating project efforts with data processing efforts. (.25 FTE)	P-11. Questionnaire Data P-09. Code Book P-08. Sample Selection Procedure and Selected Sample

[a] Full Time Equivalency.

[b] An arbitrary code number (see "Index of Outputs").

FIG. 5. Project roster.

field of educational diffusion and utilization. Insight from these reports will be incorporated into the recommendations in the final report.

P-03. Reports on European Research Utilization Projects (ERUP). These are also referred to as Norway case studies. This set of reports or case studies is the result of site visits during the winter of 1970-71 in which prototype questionnaires from the parent project were utilized.

*P-06. Questionnaire. This is the primary data-gathering tool of the project. Recommendations will be made in the final report as to its usefulness, economy, and value over time.

*P-07. Questionnaire: Administration Procedure. This is a documentation of the emergent procedure for administration of the primary data-gathering tool of the project, and is a primary component of the final set of guidelines for conducting a monitoring system.

*P-08. Sample Selection Procedure and Selected Sample. This item is a list of school districts in the U.S. which constitute a statistically valid survey sample for the purposes of this project, and a documentation of the sample selection process.

*P-09. Code Book. This is a list of computer codes to be used to call programs for processing data from this project. Whenever possible, "canned" programs already owned by CRUSK were used. Open item codes were constructed by project staff.

*P-11. Questionnaire Data. This is the total raw data elicited from school districts by use of P-06.

P-12. Raw Data from ERUP Site Visits. (See P-03.)

P-13. First RACIPE Report. (See P-02.)

P-14. Second RACIPE Report. (See P-02.)

P-15. Third RACIPE Report. (See P-02.)

*M-04. RACIPE Selection Process. This committee was selected by the Project Director to provide a wide, expert coverage of innovation processes, research utilization, information dissemination, and all closely related areas.

*M-05. Selected and Trained Staff. The staff for this project was selected by the Project Director to provide the project with a definite set of skills.

M-10. Project Decision-making Strategy. This is a nondocumented process used by the Project Director and staff to facilitate decision making within the project. (That is, nondocumented within the MPIRE Project; a description of this process can be found in Chapter V.)

The final output of this project is the set of guidelines for monitoring and surveying innovation processes in school districts. However, the RACIPE reports are contracted final outputs of this project also, and will stand alone as a set of recommendations on research and development priorities on diffusion and utilization processes. The Norway case studies maintain a similar posture. They are final outputs in their own right, but information and experience drawn from creating both sets of reports will be used by the project staff to strengthen, modify and/or validate the recommendations in the final report.

Component outputs of this project are the questionnaire and questionnaire administration procedure. These will be incorporated into the final report as they stand. All other listed outcomes of the project may be regarded as facilitating outputs, since they support the development of the component and focal (contracted final) outputs of the project.

Output map. The dependent relationships of the outputs identified in this project are represented in Figure 6. This representation is not necessarily sequenced over time.

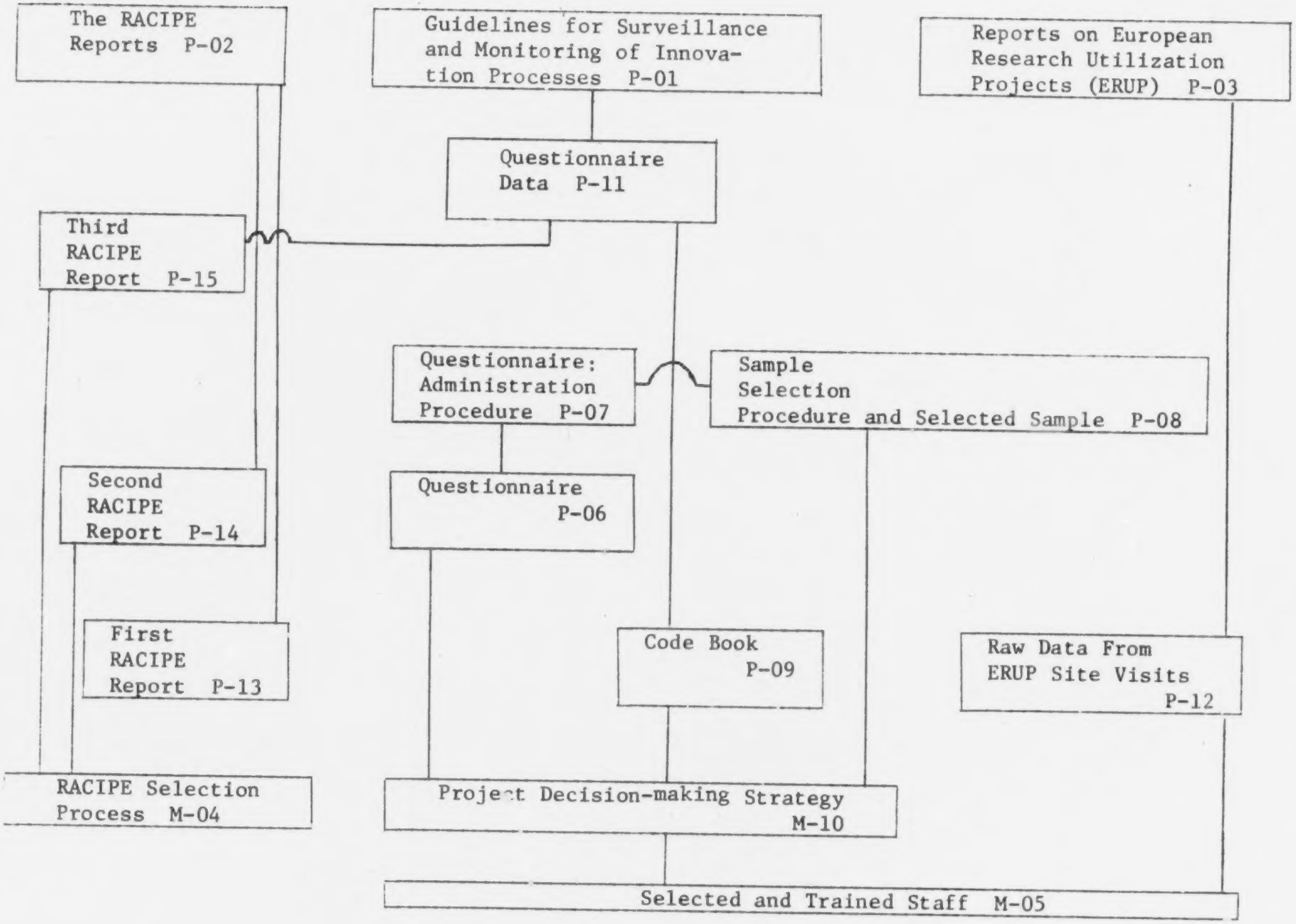

The RACIPE Reports P-02
Guidelines for Surveillance and Monitoring of Innovation Processes P-01
Reports on European Research Utilization Projects (ERUP) P-03
Questionnaire Data P-11
Third RACIPE Report P-15
Questionnaire: Administration Procedure P-07
Sample Selection Procedure and Selected Sample P-08
Second RACIPE Report P-14
Questionnaire P-06
First RACIPE Report P-13
Code Book P-09
Raw Data From ERUP Site Visits P-12
RACIPE Selection Process M-04
Project Decision-making Strategy M-10
Selected and Trained Staff M-05

FIG. 6. Output map.

Chapter III: Summary of the Data

Interview data were gathered around the selected outputs described in Chapter II. The interviews sought to elicit, for each output, (a) the standards by which one judges the satisfactory completion of the output, (b) the tasks required to generate an output meeting those standards, and (c) the enablers (knowledges, skills, and sensitivities), which facilitate the carrying out of those tasks. The tables included in this chapter summarize the interview data by these five categories (standard, task, knowledge, skill, or sensitivity) and by the outputs interviewed around.

Within each of the categories are a series or set of descriptive labels which are representative of interviewee statements (raw data) within a particular category. These descriptive labels are listed in the table under the category heading. In the process of reducing raw data (interviewee statements) about an output, these narrative statements made by the interviewee were linked to one of the categories of standards, tasks, or enablers. Each narrative statement was then classified by means of a code number according to the most representative descriptive label within a given category.[1]

During data collection open-ended questions about each of the categories were asked of the interviewee with respect to a particular output of the project for which he carried major responsibility. In most cases each output was interviewed around with only one project staff member. However, when time permitted, a major output was investigated through interviews with more than one staff member. Care was taken to select, whenever possible, an informant for each output who had both consistent and major involvement with the output's production.

Each of the tables to follow in this chapter provides the frequency with which these interviewees cited specific category statements around the outputs identified. These specific statements are represented by the descriptive labels in the tables, and by means of the table are linked within a category to a specific output. Descriptive statements for standards are found in Tables 1 and 2, those for tasks in Table 3, knowledges in Table 4, skills in Table 5, and sensitivities in Table 6.

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[1] If the reader is interested in the narrative statements of the interviewees (raw data), these can be found in the Appendix. To locate the narrative statement for any given category, first note the output and its identification number in the table. Second, note that each descriptive label within a given category has a distinct number or code. Turn to the Appendix and locate the output. Under the output locate the category label or heading (standard, task, or enabler) and pinpoint the number or numbers (depending on frequency cited) of the descriptive label which appeared in the table. The statement in the Appendix opposite this number is the original narrative statement from an interviewee and is only represented in the table by the descriptive label and its number coding.

While frequency numbers of statements falling within each descriptive label contain some weighting information in themselves, the peculiarities of the project and its outputs must be taken into account when interpreting such data. The following is a discussion, therefore, of each table and is intended to provide further insight into the mechanics of this particular project. The interpretation provided has been reviewed by the Project Director and is drawn from visitation to the project site, the interviews which took place there, the project proposal, and other available project documents.

Standards Held for Outputs

Tables 1 and 2 present the standards, elicited from interviewees, which were described as being applied to the listed outputs. The standards are subdivided and tabulated under two subcategories: production (output) standards and management (process) standards. It should be noted that these are the standards which the interviewee was familiar with and was able to describe.

Table 1 shows heavy weighting across all outputs of this project under the heading "acceptance by others (in project)." This is related to the process factors involved in this particular project.

The questionnaire and the procedures by which it was administered were subject to the greatest number of standards. Five different categories of standards were applied to these two outputs with a heavy emphasis for both outputs on the standard "acceptance by others (in project)."

Group review and refinement and use of consultants was a constant factor at all steps of the project even though individuals had personal tasks to perform. This effort at quality control relates to the fact that items appearing in Table 1 reflect what was seen by the observer as a general staff concern for project quality.

Table 2 represents management (process) standards for several outputs with no appearance of significant weighting across outputs. The RACIPE selection process was entirely a management outcome, and therefore shows more management (process) standards than any other output of the project.

Tasks Pertaining to Ouput Attainment

Table 3 reflects frequencies of tasks by descriptive labels across outputs, and the total number of tasks for each output which was interviewed around. The weighting across outputs shows the primary concerns of the project staff, and this interview data coincides with other information available about this project. "Designing the output" was the primary activity of this project, and as such, there was a prevalence of consideration for quality. "Producing the output" was a near second.

"Procuring professional staff" who would have the required skills and interests to do the tasks was another heavily wighted item. Clarifying the problem addressed was a task to which the project staff assigned time and energy early in the project. This included clarifying what it was they were going to do, establishing clear areas of responsibility, and developing a common language to be used for the life of the project. The rest of the weightings in this chart are representative of the pattern for the project with the single exception of the low weighting for "assessing the output quality."

TABLE 1
Output Standards for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Outputs (Category code no. and label for coding set J-1)										
No.	Label	01 Completeness of content	04 Communication and clarity	05 Utility or value	07 Personal satisfaction	11 Appropriateness design/content	12 Goal attainment	13 Acceptance by others (in proj)	14 Acceptance by sponsor	16 Compares favorably	22 Functions as planned	Output Totals
P-01	Guidelines for Surveillance and Monitoring of Innovation Processes							2	1			3
P-03	Reports on European Research Utilization Project	1		1				1				3
P-06	Questionnaire		1					3	1		3	8
P-07	Questionnaire: Administration Procedure						1	3			1	5
P-08	Sample Selection Procedure and Selected Sample					2	2				1	5
P-09	Code Book	1										1
P-11	Questionnaire Data				1					1		2
	Category Totals	2	1	1	1	2	3	9	2	1	5	27

TABLE 2
Process Standards Cited for Each Output Analyzed

Project Outputs		Primary Categories of Standards for Processes (Category code no. and label for coding set J-2)								Output Totals
No.	Label	01 Personnel cooperate	04 Deadlines are met	05 Acceptable level of output	07 An expected activity occurs	12 No obvious omissions	18 Desired personnel obtained	32 Resources available on request	34 Impact of effort favorable	
M-04	RACIPE Selection Process	1			1	1	1			4
M-05	Selected and Trained Staff			1					1	2
P-09	Code Book					1				1
P-11	Questionnaire Data		1			1		1		3
	Category Totals	1	1	1	1	3	1	1	1	10

TABLE 3
Tasks Cited for Each Output Analyzed

Project Outputs No. Label	Clusters of Tasks (Cluster code no. and label for coding set NO) 01 Clarifying problem addressed	02 Formulating objectives	03 Designing the output	04 Producing the output	05 Collecting/processing data	06 Assessing the output quality	07 Diffusing the output	21 Procuring professional staff	22 Effecting accountability	23 Procuring systems/services	24 Effecting quality control	25 Maintaining job satisfaction	26 Facilitating growth of staff	29 Facilitating relationships	31 Diffusing info within project	33 Effecting decision mechanisms	Output Totals
P-01 Guidelines for Surveillance and Monitoring of Innovation Processes				4							6			4	1	1	16
P-03 Reports on European Research Utilization Projects	1			1	3												5
P-04 RACIPE Selection Process								6								1	7
M-05 Selected and Trained Staff								10			1	1	1		1		14
P-06 Questionnaire	8	1	4	7		3			1	1	2				3	1	31
P-07 Questionnaire: Administration Procedure			2	1	2		1		1		1					2	10
P-08 Sample Selection Procedure and Selected Sample	3	4	11						1		1					1	21
P-09 Code Book	1	1	2	2	6				1					1		1	15
P-11 Questionnaire Data			1	3	3				4	1				5		1	18
Cluster Totals	13	6	20	18	14	3	1	16	8	2	11	1	1	10	5	8	137

Enablers Pertaining to Output Attainment

Table 4 relates the knowledge categories cited across the outputs of this project and shows high frequency in "Subjects related to RDD&E." A trained understanding of public schools, questionnaire usage, data management, and innovation processes was seen as required by this project in order to develop its desired outputs. The second most frequent tally across outputs is for specific knowledge generated within the project. This refers to the need in this project for each staff member to understand the total project at all times, so that his individual contribution will be consistent with and beneficial to the work done by the others.

Table 5 displays frequencies of reported skill needs for this project, and shows a scattered pattern with neither heavy weighting across outputs, nor strong similarities between outputs. This represents the diversity in skills needed for this project, and supports the need for selecting staff members with wide backgrounds of skills.

The types of sensitivities needed for this project are reported in Table 6, and generally fall into two categories: (a) working with other people in a manner which promotes the purposes of the project and (b) understanding and being sensitive to the effects of the various efforts on other parts of the project, on participating subjects, and on related work in the general field.

The set of tables, as a whole, describe a project with several technical aspects designed to elicit information about how people interact in using knowledge to promote change in public schools. Understanding of and and sensitivity to individual and group psychological processes appears to be an underlying staff asset for this project.

TABLE 4
Enabling Knowledges Cited for Each Output Analyzed

Project Outputs No. Label	02 Subjects learned in courses	03 Subjects related to RDD&E	04 Technical/professional topics	05 Projects focus topics, external	06 Project variables, external	07 Project operation: general	08 Project operation: specific	09 Scheduling and organizing	10 Staff status/responsibilities	11 Fiscal matters	12 Resources: personnel	16 Guidelines for reporting	18 Staff competencies/interests	19 Technical terminology/language	22 Use of equipment/systems	24 Processes implementation (proj)	25 Sources of info/materials	27 Potential field setting	28 Group dyn/decision processes	Output Totals
P-01 Guidelines for Surveillance and Monitoring of Innovation Processes		6				1					1		1							9
P-03 Reports on European Research Utilization Projects		1		1												1				3
P-04 RACIPE Selection Process		1		2			1				3									7
H-05 Selected and Trained Staff						1			1		1		2				1			6
P-06 Questionnaire		4		1	1		1			1									1	9
P-07 Questionnaire: Administration Procedure		4				1				1		1								7
P-08 Sample Selection Procedure	3	2					1									2		1		9
P-09 Code Book		1					3							1	2	4				11
P-11 Questionnaire Data								1								4				5
Category Totals	3	19		4	1	3	6	1	1	2	5	1	3	1	2	11	1	1	1	66

Primary Categories of Enabling Knowledges (Category code no. and label for coding set S-1)

TABLE 5
Enabling Skills Cited for Each Output Analyzed

Project Outputs		Primary Categories of Enabling Skills (Category code no. and label for coding set S-2)																		Output Totals
No.	Label	01 Teaching	02 Facilitating people interaction	05 Programming project events	06 Programming subject matter	10 Analytical data handling	14 Writing	18 Finding fits/integrating	23 Persuading/justifying	24 Explicating goals/procedures	25 Applying measurement tools	29 Getting others to perform	31 Taking another's perspective	32 Identifying/correcting errors	35 Communicating clearly	37 Assessing skills/potential	38 Using resources effectively	39 Constructing measurement tools	40 Defining terms/problems	
P-01	Guidelines for Surveillance and Monitoring of Innovation Processes					1				1		1			1		1	1		6
P-03	Reports on European Research Utilization Projects		1				1	1			2									5
P-04	RACIPE Selection Process								1											1
M-05	Selected and Trained Staff	1		1												1	1			4
P-06	Questionnaire				1		1	1					1		1			1		6
P-07	Questionnaire: Administration Procedure					1	2				1						1			5
P-08	Sample Selection Procedure							1											1	2
P-09	Code Book							1												1
P-11	Questionnaire Data													1						1
	Category Totals	1	1	1	1	2	4	4	1	1	3	1	1	1	2	1	3	2	1	

TABLE 6
Enabling Sensitivities for Each Output Analyzed

No. Label Project Outputs	Primary Categories of Enabling Sensitivities (Category code no. and label for coding set S-3)									Output Totals
	02 Capabilities and limitations	16 Existing value systems	17 Personality of others	19 Supportiveness required	24 Sources of error	31 Nature/scope of output	33 Need for excellence in work	35 Need to communicate effectively	38 Emerging directions	
P-03 Reports on European Research Utilization Projects	2									2
P-04 RACIPE Selection Process		1	1							2
M-05 Selected and Trained Staff				1						1
P-06 Questionnaire	1	1							2	4
P-07 Questionnaire: Administration Procedure	1	1						1		3
P-09 Code Book						1	1			2
P-11 Questionnaire Data					1	1				2
Category Totals	4	3	1	1	1	2	1	1	2	16

Chapter IV: Supplementary Data

This chapter contains information on output classification, staff background, and resources needed for carrying out the tasks of the project. It also provides a look at the outputs across the various project phases.

Classifications of Output Characteristics

As the Oregon Studies evolved it became evident that outputs could be categorized in terms of a number of variables. Among them are (a) Structure (product, event, or condition), (b) Function (policy setting, management, or production), (c) Level (focal, component, facilitating), (d) Character (knowledge, technology, implementation, or information), and (e) Stage of Completion. These five schemes are represented in Table 7 for each project output identified, with frequencies summarized for each category. Table 7 has been added to this profile subsequent to the profile's original writing.

Summary of Staff Background

One staff member holds a doctorate in psychology. Two others are doctoral candidates holding master's degrees, one in communications and the other in social foundations. Another staff member holds a master's degree in sociology. The number of previous years of involvement in research for each staff member ranges from six months to nine years.

Summary of Interviewee Responses

Present position requirements. On direct questioning the staff reported the following requirements as most important for the overall work on this project:

1. Skills in human relations.
2. Organizational development skills.
3. Knowledge of literature in planned change and motivation in education.
4. An understanding of the art of asking questions.
5. Knowledge of statistical principles and methods.

TABLE 7

Classifications of Output Characteristics

Project Outputs		Output Characteristic[a]																		
		Structure			Function			Level			Character (Products only)				Completion Stage					
No.	Label	p	e	c	ps	m	p	f_1	c	f_2	k	t	i_1	i_2	1	2	3	4	5	6
P-01	Guidelines for Surveillance and Monitoring of Innovation Processes	X					X	X				X							X	
P-02	The RACIPE (Research Advisory Committee on Innovation Process in Education) Reports	X					X	X						X						X
P-03	Reports on European Research Utilization Projects (ERUP)	X					X	X						X		X				
M-04	RACIPE Selection Process		X			X				X						X				
M-05	Selected and Trained Staff			X		X				X						X				
P-06	Questionnaire	X					X		X			X					X			
P-07	Questionnaire: Administration Procedure	X					X		X			X						X		
P-08	Sample Selection Procedure and Selected Sample	X				X				X		X					X			
P-09	Code Book	X				X				X		X							X	
M-10	Project Decision-making Strategy			X		X				X										X
P-11	Questionnaire Data	X					X			X				X					X	
P-12	Raw Data From ERUP Site Visits	X					X			X				X		X				
P-13	First RACIPE Report	X					X		X					X		X				
P-14	Second RACIPE Report	X					X		X					X					X	
P-15	Third RACIPE Report	X					X		X					X					X	
Classification Frequencies[b]		12	1	2	0	5	10	3	5	7	0	5	0	7	0	5	2	4	5	2

[a] The specific output characteristics are identified as follows:

Structure

p - product
e - event
c - condition

Function

ps - policy setting
m - management
p - production

Level

f_1 - focal
c - component
f_2 - facilitating

Character

k - knowledge
t - technology
i_1 - implementation
i_2 - information

Completion Stage

1 - completed over one year ago
2 - completed 3 to 12 months ago
3 - completed within last 3 mos.
4 - currently in progress
5 - not yet underway
6 - on going (continuous)

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[b] Data totals in this table may vary slightly from data in tables reported elsewhere. This is a function of decision rules governing classification of outputs having been revised and applied to these data subsequent to the preparation of the profile.

6. Knowledge about the U.S. educational system.
7. Knowledge of communication theory.
8. Skill in administrative procedure and protocol.
9. Knowledge of data gathering, coding, and electronic processing procedures.
10. Familiarity with computer technology.

Support resources. The support services used by the personnel of this project were:

Printing.
Art work and illustrations.
Editing.
Secretarial service, other than typing.
Typing.
Purchase of supplies and equipment.
Library holdings.
Subscriptions to technical and professional journals/periodicals.
Requests for documents or publications not locally available.
Computer analysis services (data processing).
Computer program writing.
Statistical consultation.
Audio-visual aids and devices.
Subjects for try-outs of procedures.
Travel arrangements.
Budgetary and other fiscal accounting.
Drafting.

Support equipment. Equipment personally used by the staff members included the following:

Dictating equipment.
Desk calculators.
Onsite computer.
Key-punch machine.
Data-card sorter.
Photographic equipment.

Output Differences Across Life of the Project.

The primary focal output of this project is a set of guidelines for surveillance and monitoring of innovative processes in public schools. The formation of this output was planned and executed in several phases which include the following outputs.

Phase 1. Selection of staff and project decision-making strategy (described in Chapter V): This phase prepared the staff for the work of the project.
Phase 2. Code book, questionnaire. Questionnaire: administration procedure, sample selection procedure and selected samples: This phase developed instruments and methodology for data collection.
Phase 3. Questionnaire data: This data collection phase consisted of the implementation of the methodology and instruments developed in Phase 2.

Phase 4. Guidelines: This phase includes the preparation of the final report, using for this preparation the results and experiences of all earlier phases of this division of the project, and taking into consideration the information included in the focal outputs of the other two divisions of the project.

Chapter V: Project Dynamics

The MPIRE Project derives benefit from the several other projects concerned with innovation, planned change, or knowledge utilization in which the Project Director is involved. For example, the staff was trained for this project with materials prepared through these other projects. Cooperation with the participating agencies is also facilitated in this project through their perception of the Director's past experience in the field. Further benefit to the project is seen in the staff's commitment to excellence in their activities on the project. This indicated commitment seems also to be due to a perceived excellence of the previous work of the Director. There was a feeling among the staff that they were engaging in a significant, timely, visible, and highly useful program of activity.

Staff Selection

Staff selection for the project took a different form for each of the three selected staff. One staff member was selected through the recommendations from doctoral students at another university. Another was selected because of his academic training and because of his performance in a meeting of scholars to which he had been invited by the Director. The third staff member had worked with the Project Director on another project in the same agency, and was selected because of performance on the earlier project and familiarity with the functioning of the parent agency, particularly the computer processing division.

Decision-making Strategy

The decision-making strategy of this project was most frequently described as a consensus strategy. Whenever possible all who had information about or interest in an issue participated in decision making. Whenever an impasse arose a 24-hour period for additional data gathering was allowed and then, if no consensus was possible, the final decision rested with the Project Director. Staff members felt their information and skills were fully utilized in the management of this project and expressed the feeling that they had easy and open access to and contact with the Project Director and to each other. The only difficulty cited was the problem of busy, sometimes nonoverlapping, schedules. When this problem interfered with project progress, a staff meeting was called for a specific time and place; usually, however, work groupings and decision making had a more informal aspect.

Project Dynamics Factors

An appropriate descriptive device for this project lies in the work of the Project Director on dissemination and utilization factors. The list of factors he has designed to assist in describing mechanisms of innovation are: linkage, structure, openness, capacity, reward, proximity, and synergy. The way these factors relate to the process and quality of work in this project is explored below:

1. Linkage. The Project Director has professional and personal ties with persons in his own and related areas of scholarship. The rest of the staff contribute connections with international education, educational organizations in the U.S., and with other branches, departments, or projects of the parent agency.

2. Structure. ISR is the primary parent agency and within ISR CRUSK is the parent subdivision. The Project Director teaches in the School of Education at the University of Michigan and one of the Assistant Project Directors is a student at that school.

   The job descriptions prepared in the proposal cover all the tasks done in the project. Task distributions follow the skills of the selected staff rather than the performed job descriptions. Responsibilities in the project were defined early, but the staff stays familiar enough with each other's work in order to be of assistance when needed.

3. Openness. The project staff strives to seek and to be open to information and attitudes from each other and from outside sources about their work and tries to be helpful to each other in project activities.

4. Capacity. The skills of the staff are known to each other allowing the staff to serve as their own internal resource system. Each staff member has areas of expertise useable to the project, and each is capable of carrying an overload of work at necessary critical points in the project. The resources of the parent agency, consultant service, and support services are available to the project.

5. Rewards. Involvement in this project has benefits in association with and continuation of a program in an area of interest and utility for public education. Additional rewards are available to project staff through consulting contracts to related projects which come to them because of the nature of the work in which they are involved.

6. Proximity. The availability of data processing, printing, and consultant services helps relieve time problems for this project. One complication, as mentioned earlier, is the sometimes nonoverlapping work schedules of the persons working on this project. When staff members are present at the same

time, however, work areas are close together. Also, travel is facilitated by closeness to a major airport.

7. Synergy. The number and types of contacts between members of this staff are high. There are project contacts, educational contacts, and social contacts, all of which facilitate an exchange of information and understanding of both the project and of each other. Since the beginning of the project there has been a striving to develop accurracy in message sending among this staff, and because of this professional and personal misunderstandings are rare. Requests for information or assistance are transmitted on a friendship rather than a power base--and a common pool of values, frames of references, vocabulary, and attitudes tends to exist among the staff.

Chapter VI: Implications for Training

Within the context of MPIRE there were three primary factors seen as affecting the work of the project. These were (a) the ability of the entire staff to understand the project's end or focal goal, (b) the successful application of knowledges and skills toward accomplishing this end, and (c) both inter- and intra-project communication conducive to such goal attainment. These factors were felt by the project staff to be important as inclusions within programs to train personnel for work in projects such as MPIRE.

The recommendations by the staff for such training was that formal, technical, or fact-based training be combined either alternately with or concurrently with actual work experience in data gathering, working with other people on a project, working on a questionnaire or survey development, and working with public school personnel. It was felt that either formal training or work experience alone would be insufficient for successful participation in the functioning of a project such as MPIRE.

MPIRE is primarily concerned with gathering and reporting a certain type of information. Those staff members responsible for planning how and what information is to be gathered emphasized the need for theoretical or strategical knowledges and skills. For example:

(a) Knowledge of the principles and theories relative to sampling;

(b) Knowledge of the principles of questionnaire design;

(c) Knowledge of appropriate statistical application for desired analysis or information yield.

The successful application of these enablers was seen as dependent on the ability of the staff members to clearly define what information was needed and for whom, i.e., the end goal. This clear understanding of the end goal was also seen as necessary for most of the other task phases of the project such as data reduction, data analysis and reporting, etc. This implies, then, that training should include context specific problems with clear and specific goal definition to which various combinations of knowledges and skills can be applied.

As previously mentioned, another factor that influenced much of the project work was communication--both internal and external to the project. Each of the staff had somewhat differing areas of task responsibility and it was important that each was able to communicate accomplishment and problems to others within a particular task area. In relation to frequent staff discussions, skills such as asking pertinent questions and suggesting viable alternatives were stressed, which suggests the necessity of small-group communication skills to facilitate understanding. It is implied within the context of this project, then, that personnel training for such contexts should focus on some context specific problems requiring communication skills among staff members in achieving their identified end goal.

Appendix

Appendix: Listing of Output Standards, Tasks, and Enablers

The following is a list of standards, tasks, and enablers for outputs around which interviews were conducted. These statements were extracted from discussions with interviewees and were coded into their respective category sets. The selected code precedes the statement and indicates the following for:

STANDARDS

Code J: Structure of Standards.

J-1 Standards against which outputs are judged. (output oriented)

J-2 Standards against which processes and/or operations are judged. (process oriented)

Code LM: Primary Categories of Standards.

TASKS

Code NO: Clusters of Tasks.

ENABLERS

Code S: Structure of Enablers.

S-1 Knowledge.

S-2 Skill or ability to perform.

S-3 Sensitivity or awareness.

Code UV: Primary Categories of Enablers (knowledges, skills, or senstivities).

The codes associated with these three categories (standards, tasks, enablers) are the same both here in the listing and as previously cited in Chapter III tables.

Each of the nine analyzed outputs is cited below within a rectangular box. Listed under each are the interview statements relevant to that output.

P-01: Guidelines for Surveillance and Monitoring of Innovation Processes

STANDARDS:

J	IM	
1	13	Acceptance by staff as a comprehensive set of guidelines reflecting both data and related experiences.
1	13	Acceptance by parent agency review panel as document ready to be presented to sponsor.
1	14	Acceptance by sponsor as a useful document, as shown by implementation of all or part.

TASKS:

NO	
04	Gather item pool for questionnaire largely from previous work of self and others.
29	Supervise and assist in creation of prototype questionnaire.
29	Supervise field tests of prototype with and without interview.
24	Supervise revision of prototype.
23	Decide on feasibility of interviews with questionnaire.
24	Supervise revision of second prototype.
24	Supervise sample selection process.
24	Supervise creation of third prototype.
29	Supervise field testing of third prototype.
29	Supervise use of questionnaire in Norway.
31	Select and conduct three RACIPE meetings.
24	Supervise data reduction and analysis from use of questionnaire in 200 school districts.
04	Integrate data analysis, RACIPE recommendations, staff experience, and Norway (ERUP) study reports into conceptual model of monitoring process.
04.	Make recommendations about frequency of surveillance, reliability of information, general usefulness of questionnaire.
04	Make recommendations for follow-up studies, research and development studies which would aid the validity of the monitoring process or would aid research utilization in schools.

ENABLERS:

S	UV	
1	03	Knowledge of own and other work done in this area.
1	03	Knowledge of questionnaire formation techniques.
1	03	Knowledge of field test techniques.
1	07	Knowledge of resources available to project.
1	03	Knowledge of relative value of interview and questionnaire data.
1	18	Knowledge of skills of own staff, for purpose of delegation of work.
1	12	Knowledge of who is expert in all related areas.
1	03	Knowledge of basic philosophies or models of dissemination and utilization.

1	03	Knowledge of value of various response rates.
2	10	Skill in assessing value of information received as response in field tests.
2	39	Skill in reworking an instrument to produce better data.
2	29	Skill in managing staff in order to get top quality work done.
2	38	Skill in integrating information from a variety of sources.
2	24	Skill in describing a set of procedures so that others can do it.
2	35	Skill in describing usefulness of questionnaires, periods of surveillance, etc., so others can select best alternative for them.

P-03: Reports on European Research Utilization Projects (ERUP)

STANDARDS:

J	LM	
1	05	Field test of prototype questionnaire resulted in usable information in own and Project Director's opinion.
1	01	Administrators of Norwegian sites responded fully to questionnaires.
1	13	Reports reviewed and accepted by Project Director.

TASKS:

NO	
05	Field test in local area of own prototype questionnaire to gain experience.
01	Study guidelines for ERUP case studies.
05	Do site visits in Norway using both instruments (questionnaires).
04	Write case profile of each Norway site, using questionnaire information and own experience.
05	Assess results of field test with Project Director.

ENABLERS:

S	UV	
1	05	Knowledge of research information, dissemination and utilization problems, literature, philosophies, practices in both this country and Europe.
1	03	Knowledge of questionnaire administration procedures.
1	24	Knowledge of 4 x 7 matrix and CIPP evaluation model.

2	25	Skill in questionnaire administration to local school personnel.
2	02	Skill in questionnaire administration to foreign school personnel.
2	02	Skill in meeting people to administer questionnaires without arousing anxiety.
3	02	Sensitivity to the problems and conditions of American school administrations.
3	02	Sensitivity to the problems and conditions of Norwegian school administration.
2	14	Skill in writing intelligible case report based on questionnaires.
2	18	Skill in integrating personal experience into report without distorting or obscuring the data from the questionnaires.

M-04: RACIPE Selection Process

STANDARDS:

J	LM	
2	07	Committee meets on time and produces report.
2	01	Committee works together well to produce report.
2	12	Project Director satisfied with composition of committee.
2	18	No refusals from persons offered position on committee.

TASKS:

NO	
33	Decide purpose of committee.
21	Determine areas of expertise to be involved.
21	Make list of persons in each area of expertise.
21	Make list (mental) of persons reflecting each of three basic dissemination and utilization models identified in study in innovation.
21	Go through innovation bibliography and count publications for each person on list.
21	Decide on persons with expertise, and on representiveness of three models.
21	Approach selected persons with description of task.

ENABLERS:

S	UV	
1	08	Knowledge of task to be done.

1	03	Knowledge of own and related fields of information.
1	12	Knowledge of leaders in each field.
1	05	Knowledge of three basic dissemination and utilization models.
1	12	Knowledge who represents three basic dissimination and utilization models.
2	23	Knowledge of own previous publications, for bibliography count.
3	16	Personal knowledge of many considered persons, to provide insight on how they would work on a committee.
3	17	Sensitivity to personal attributes which add to or detract from ability to work well in committees.

M-05: Selected and Trained Staff

STANDARDS:

J	LM	
2	05	Staff performs work assignments in acceptable manner.
2	34	Staff displays loyalty and pleasure connected with project.

TASKS:

NO	
21	Think through needs of the project.
21	Look within own organization for suitable persons.
21	Tell other people what sort of person is being sought.
21	Solicit referrals from colleagues and peers.
21	Confirm Research Assistant because of own previous knowledge.
21	Select one Assistant Project Director on recommendations.
21	Interview second Assistant Project Director.
21	Observe second Assistant Project Director at conference.
31	Meet with new staff to discuss proposal, responsibility, time lines, etc.
24	Assess, through observation, skills of staff as they apply to responsibility areas of project.
25	Redistribute responsibilities which were described in the proposal to accommodate the real skills of the staff.
26	Start work of project slowly to accommodate the above assessment, and to get work done most efficiently.
21	Think through staff resources available to project.

ENABLERS:

S	UV	
1	17	Understanding of skill needs of the project.
1	12	Knowledge of skills of persons in own organization.
1	18	Knowledge that colleagues know students, professionals not known to self.
1	18	Knowledge of good work done on earlier project by Research Assistant.
1	25	Knowledge of who in field trains people who might be good for project.
1	10	Knowledge of efficient uses of people in relation to their real skills.
2	37	Skill in assessing talents of staff by observation.
2	38	Skill in reassigning tasks to match real skills without causing trouble.
2	05	Skill in managing project time line to allow for realistic staff assignments.
2	01	Skill in training staff in basic philosophies and information of project.
3	19	Sensitivity to people's unspoken needs for recognition of real skills.

P-06: Questionnaire

STANDARDS:

J	LM	
1	22	Items (and the instrument) are gathering appropriate data for analysis and processing.
1	22	(Some) items will yield information which can be compared with other earlier studies of a similar nature.
1	13	Staff review of each prototype of each section of questionnaire.
1	04	Trial-use administrators respond that questionnaire is clear.
1	22	Trial-use administrators respond that questionnaire can be completed in time allowed.
1	13	Project Director's OK of format and content for each prototype.
1	13	Acceptance by parent agency review committee for agency instruments.
1	14	Acceptance by sponsor.

TASKS:

NO	
01	Review of research in areas where similar kinds of studies have been done--in terms of the objectives for the study and instrumentation.
01	Review the wordings and dimensions of some instruments.
31	Report (internally) the limitations of the instruments reviewed.
01	Determine whether or not any of the existing instruments could measure any of the variables of our study.
01	Determine which items, if any, from existing instruments we would like to include in our instrumentation.
23	Obtain permission to use items in our instrumentation.
04	Adopt and/or modify items from existing instruments.
04	Construct new instrument items.
03	Consider the variable or concept to be measured.
03	Decide upon a method by which the variable can be measured--a question.
03	Determine how to record the response.
03	Determine what is to be done (how is the data to be analyzed and interpreted).
02	Specify the hypothesis/assertion of the study and the relative concepts.
06	(Perhaps) redefine the assertions based upon the capacity to measure the concepts/variables thereof.
06	Determine if items (and instruments) are gathering appropriate data by field testing the instrument.
01	Review previous related work for understanding of theoretical base, parameters, areas of concern.
31	Staff meet and work out "working together" processes--language resolution, identification of individual capabilities and responsibilities.
01	Review proposal to make clear the general areas of activities possible with money available--two weeks spent figuring what it means, what commitments are.
01	Review literature on education in America, philosophies, processes, etc.--What are American school systems?
01	Review other instruments which have been used to study similar processes, populations.
04	Create questions from matrix of 4 x 7 items which describe the nature of a linking or information exchange situation.
04	Create item pool from all possible sources, selecting only for general area coverage and possible usefulness.
04	Collapse item pool from 200+ to a possible number for a mail response questionnaire (50-60).
04	Develop pool of interview questions to accompany the questionnaire decided upon (later, to be combined with other questions in pool).
22	Divide up total item pool into sections for each person to review, collapse, write new questions from.

31	Staff meet with new subsections for questionnaire to review each other's work on consolidation, writing of new questions.
06	Rewrite, or extend, or further collapse section worked on in light of staff review of that section.
04	Put together all subparts to submit to secretary to be printed up.
24	When prototype questionnaire returns from printer, staff review and redivide for further revision, collapsing.
24	Repeat review, rewriting cycle four times until questionnaire is satisfactory.
33	Decide on format for each section and order of sections, so that physical appearance of questionnaire facilitates utility of it.
05	Try each prototype form on a few nearby school administrators to discover nature of responses form elicits, time consumed, etc.
03	Identify variables to control for in the sample selection.
01	Select the variables that could realistically be controlled in the sample.
01	Define the variables, i.e., what is meant by the variable Urban/Rural.
03	Determine size of the sample.
03	Discuss alternatives and trade-offs between a large and small sample size.
03	Determine how sample size would bias the sampling procedures.

ENABLERS:

S	UV	
1	08	Know the objectives of the project or study.
1	27	Know what the general population is that is to be studied.
1	02	Basic understanding of the principles of probability.
1	02	Know what is meant by sampling.
1	02	Know various methods of sampling.
1	02	Know what is meant by response rate--what is a valid and invalid response rate?
2	18	Be able to explicate the relationship between the sample size and the type of analysis to be performed on the data from the sample.
1	24	Know the types of analyses to be performed in relation to the data.
1	03	Know what the analyses mean that are performed on the data, i.e., significant differences between means, etc.

P-07: Questionnaire: Administration Procedure

STANDARDS:

J	LM	
1	22	Field test of procedure results in completion of questionnaire by school administrator.
1	12	Field test of procedure results in response rate satisfactory to project staff.
1	13	Description of procedure meets project staff approval.
1	13	Description of procedure meets Project Director's approval.
1	13	Final report of project, including this description of procedure, passes parent agency review panel for submission to sponsor.

TASKS:

NO	
22	Budget time roughly over life of project to estimate time for actual questionnaire use.
33	Make decisions about interviews--can they fit into budget?
03	Plan nonresponse follow-up in order to improve results as much as possible after primary response to questionnaire.
24	Plan nonresponse study to derive as much information as possible from incomplete response to questionnaire.
05	Conduct trial application of questionnaire with accompanying interview.
05	Conduct trial application of questionnaire without accompanying interview.
33	Make decisions about interviews based on value of difference of response, and size of possible surveyed population within budget, each way.
04	Prepare cover letter to accompany questionnaire.
03	Decide upon response rate to strive for before beginning analysis of responses.
07	Write up use procedure for inclusion in final report, with explanations and advice from experience to be used by others who want to do the same or similar survey at other times, place.

ENABLERS:

S	UV	
1	07	Knowledge of total responsibilities and resources of project in order to budget time, money.

1	11	Knowledge of costs of mailing questionnaires, letters, reminders, etc, including materials, staff time, printing.
1	03	Knowledge of follow-up techniques which will encourage subjects to be late rather than nonresponders.
1	03	Knowledge of statistical meaningfulness of various rates of responses in order to decide on time, money to invest in follow-up.
1	03	Knowledge of nonresponse study techniques in order to derive as much information as possible from nonresponses.
1	03	Knowledge of interview techniques in order to try questionnaire with interview.
1	16	Knowledge of reporting responsbilities of project (from proposal) in order to write up use procedure in proper form.
2	38	Skill in juggling resources of time and money to allow project to accomplish as much as possible.
2	25	Skill in interviewing school administrators in manner which encourages responses, discourages anxiety or defensiveness.
2	10	Skill in assessing completeness of responses to both interviews and questionnaires, in order to decide if interviews necessary.
2	14	Skill in writing cover letters to questionnaires which will tell enough clearly enough, so that administrators are encouraged to respond completely to the questionnaire.
2	14	Skill in descriptive writing about use of an instrument, in order to describe use well enough for others to repeat it.
3	02	Sensitivity to the limited time and resources of school administrators.
3	16	Sensitivity to the current situations which cause anxiety or defensiveness in school administrators.
3	35	Sensitivity to the need for complete detailed description of interview administration procedure by others who wish to repeat process.

P-08: Sample Selection Procedure and Selected Sample

STANDARDS:

J	LM	
1	12	The sample size is manageable for the allocated resources--to carry out data collection and follow-up.
1	11	The sample (size and variables within the sample)

	is adequate for the purpose of the survey/study.
1 12	Range of sampling error is within limits to generalize data output to the general population or frame.
1 11	Cells within the sample design (matrix) could be collapsed and analyzed to provide information (data) generalizable to the general population.
1 22	Procedure could be operationalized in view of sampling information stored on tapes--names and addresses.

TASKS:

NO	
02	Discussed the implications of sampling with a sampling expert.
02	Consider the type of analysis that is to be performed in relation to the data that is extracted from the sample that is to be selected.
03	Determine the range of sampling error that would be acceptable--for estimating population parameters.
03	Consider the response rate--what is an acceptable level.
02	Consider the size of the sample to be selected.
03	Consider the data collection procedure--mailed questionnaire, personal interview, etc.
22	Consider the costs of the data collection procedure.
33	Decide upon a fixed sample size.
03	Determine the sampling procedure.
02	Determine the purpose of the survey.
03	Specify the variables of the sample population--pupil size and region.
03	Specify the sampling population and the sampling unit.
01	Review the literature in terms of sampling procedures and instrumentation which might be applicable to this type of study/survey.
03	Consider whether or not a similar investigation may be done in the future--in designing the sample.
24	Consider, in the sample design, the techniques to be used for gathering the information.

ENABLERS:

S UV	
1 03	Knowledge of survey sampling techniques (from review of inhouse literature from survey section of parent agency).
1 03	Knowledge of logic of survey information analysis.
1 03	Knowledge of standard research techniques as applied to education situations, in order to build statistically valid questionnaire.
1 03	Knowledge of unobtrusive measures in order to get as much information from each contact with schools as

possible.

1 28 Knowledge of small group processes in order to build functional staff relationship.

1 06 Knowledge of information linking literature, theories, and processes in order to set up areas questionnaire should attend to.

1 05 Knowledge of previous questionnaires used in social sciences studies of influence structures, teachers, students, communities, and protest survey.

1 11 Knowledge of approximate costs of conducting interviews as well as paper and pencil questionnaire, in order to assess possible dimension of study.

2 06 Skill in organizing questionnaire physically in order to strengthen usefulness of responses.

2 35 Skill in reducing or improving verbage of questions to make them clear, unambiguous, but still useful.

2 14 Skill in selecting or compressing questions to maintain coverage of all important areas of concern while reducing bulk of questionnaire.

2 18 Skill in keeping question form and content consistent with eventual analysis procedures.

3 02 Sensitivity to worries and concerns of population the questionnaire is intended to question, in order to not antagonize or alienate them.

3 16 Sensitivities to life styles and values of same population in order to frame questions in terms they will feel comfortable responding to.

P-09: Code Book

STANDARDS:

J LM

1 01 Complete--every item in the questionnaire has been covered in terms of assigned code(s).

2 12 Complete--pretest questionnaires have been coded and there are no significant gaps in the coding.

TASKS:

NO

01 Identify the identification information that the computer center requires to be on tape.

03	Set up all the closed-item layout/locations on the tape.
03	Determine variables which can be combined to create a new variable or variables.
02	Consult with the staff to obtain their reactions relative to the three steps listed above.
29	Consult with the computer center staff (coding people) to obtain their reactions relative to the three steps listed above.
22	Ideally, attempt to stay within the bound of the "canned" programs center already has.
05	Code pretest (field test) questionnaires manually to "debug."
05	Code the questionnaires (done by the coding people).
04	Construct open-item codes
05	Write the response to the open-ended question on a card.
05	Sample every 10th questionnaire for responses to open-ended questions.
05	Categorize the responses of the sampled open-ended questions.
05	Assign codes to the categories.
33	Decide whether or not to establish a subcode within a code, i.e., the first digit would refer to a general category and the second two digits would be more detailed.
04	List the variables by number.

ENABLERS:

S	UV	
1	24	Know what is being done in terms of coding and processing.
1	19	Know what the codes mean.
1	24	Know how the codes get translated onto a card or piece of tape--how information is coded onto a card so you know what you've got.
1	08	Understand what the code book is for.
1	24	Know how to use the code book.
1	08	Know in detail the instrument (questionnaire).
1	24	Knowledge of the kinds of analysis performed in relation to questionnaire data--what kinds of frequencies are going to be run, etc.
1	03	Know which variables are qualitative and which are quantitative to determine kinds of codes to use.
3	33	Appreciation for how crucial the job of coding is.
3	31	Perspective as to how this aspect of the project fits into the whole/entire project effort.
1	08	Know the aims and goals of the entire project so you know what the data is going to be used for.

P-11: Questionnaire Data

STANDARDS:

J	LM	
2	32	Information as to the status of each questionnaire can be immediately obtained.
2	04	All information relative to the questionnaire is recorded/filed within the last day's mailing.
1	16	Data appear "clean" in that there is consensus between the control list, number of records on tape, and the number of questionnaires that have been returned.
2	12	Nothing (data) is outside the specified range of codes.
1	07	Data "looks" right--subjective evaluation which one learns from experience of working with data.

TASKS:

NO	
29	Mail out the questionnaire to a selected sample.
33	Decide how envelopes are to be addressed--printed off the computer tape or typed from a list.
22	Maintain a file system (monitoring).
22	Pull a card when a questionnaire is mailed out.
22	Put the card in another file when the questionnaire is returned.
05	File the questionnaires.
29	Send reminder postcard to delinquent respondents (first follow-up).
29	Send letter and a second questionnaire to delinquent respondents (second follow-up).
29	Place a telephone call to delinquent respondent.
04	Determine what exact programs to run of which variables.
05	Work raw data into tables for analysis.
23	Set up a coding schedule for people in the computer center.
22	Coordinate the coding and processing of data with the computer center.
29	Submit a data processing request form which specifies exactly what you want the computer center to do in terms of data processing.
	"Debug" the data.
06	Compare the variable spreads against the code book.
06	Look for open-ended codes with no frequencies.
06	Look for invalid codes.
05	Determine if tallies match--number of questionnaires returned matcher printout of tape record.

ENABLERS:

S	UV	
1	09	Know how to set up a record-keeping system.
1	24	Know who got mailed a questionniare.
1	24	Know the status of a questionnaire--mailed out, sent back, etc.
1	24	Know the filing/record-keeping system sufficiently to answer any questions about it.
3	24	Sensitive to the fact that everything has to match.
3	24	Aware of the areas where mistakes are commonly made.
3	24	Sensitive to the ways common errors occur (or are made) so you can correct them.
2	32	Ability to correct coding and processing errors.
1	24	Know the sequence of events that data go through.

A GUIDE TO THE OREGON STUDIES IN EDUCATIONAL RDD&E

Volume I

SUMMARY REPORT

An introduction to and overview of the Oregon Studies as a whole. The volume contains an outline of the history of the Studies, the rationale around which they were designed, the context within which they were carried out, and the procedures followed in their execution. It also contains a description of the projects selected for study, the rationale underlying their selection, the criteria and procedures used in their selection, and an overview of the data collected on each project. Finally, the volume contains an introduction to the "case profiles" that house the data collected on each project, the results of all cross-project analyses, and the summary recommendations that have been made relative to training and the continued study of educational RDD&E activities. A brief description of the case study methodology developed within the Studies, an overview of a process whereby investigators may query computer-stored data files and original interview statements to obtain information bearing upon specific questions relating to training, manpower, policy, and work performance, and supporting data accompany the volume.

Volume II

THE LITERATURE OF EDUCATIONAL RDD&E

A compendium of existing literature that defines, describes, differentiates, or relates the activities labeled educational research, development, diffusion, evaluation, and various combinations thereof. The articles within the volume are introduced as a collection. Linking passages provide an interpretive context both for individual articles and for the sets into which they have been grouped.

Volume III

CONCEPTUAL FRAMEWORKS FOR VIEWING EDUCATIONAL RDD&E

A collection of papers which provide the conceptual underpinnings to the Oregon Studies. It contains three papers commissioned by the Studies as a basis for conceptual development, and a paper by staff from Teaching Research that describes the conceptual frame that guided and grew with the empirical thrust of the Studies. Each of the papers is a major document which defines, differentiates, and relates one or more facets of educational RDD&E and provides a supporting rationale for the position adopted. Each paper is accompanied by a formal critique, and the set of papers is accompanied by an introductory and summary critique.

Volume IV

PROFILES OF EXEMPLARY PROJECTS IN EDUCATIONAL RDD&E

A collection of twenty case profiles that form the data base in the Oregon Studies. Printed in three parts, the profiles describe five research projects, seven development projects, three evaluation projects, and five diffusion projects. Each profile contains descriptions of the structure and function of the project being analyzed, the specific outputs expected to emerge from it, the operations required to produce each output, and the knowledges, skills, and sensitivities judged to be essential to the performance of those operations. In addition, each profile contains sections dealing with the "dynamics" of project operations and implications that derive from the project for preservice staff training. The projects described range from small, two-man efforts within university settings to very large school district "projects" employing several dozen staff members. Eighteen of the twenty projects described were judged to be illustrative of the kinds of RDD&E activities likely to occur within the context of education in the future. The twenty projects account for analyses around 298 project outputs and interviews with 134 professional staff members.

Volume V

A METHODOLOGY FOR THE STUDY OF EDUCATIONAL RDD&E

A detailed description of the most refined form of the data collection methodology developed within the Studies, directions to guide its use, and the decision rules needed for the volume to function as a users manual. The volume includes information on procedures used in site contact, site preparation, data reduction and analysis, and profile preparation. It also includes information on the category sets used in data reduction and the computerized data files that contain or provide access to all data collected in the Studies.

Copies of any or all of these volumes
may be obtained at cost from
Teaching Research
Monmouth, Oregon 97361